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Malaria Treatment of General Paralysis

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ACTIVE and energetic treatment of general paralysis began soon after the introduction of the Wassermann reaction, the serological study of the spinal fluid, and the demonstration of the *Spirochaeta pallida* in the brain tissue. Salvarsan and neosalvarsan came into use and were administered by various methods. Arsphenamine intravenously and injections of arsphenamized serum intraspinally, intradurally or intraventricularly were tried extensively. Mercurials and iodides were used as reinforcements and introduced either by mouth, subcutaneously, or intravenously. In spite of all efforts the mortality rate among paretic patients was extremely high and the remission rate extremely low.

The history of the treatment of general paralysis at the Connecticut State Hospital is essentially the same as the history of the treatment of general paralysis itself. Prior to the year 1920, this disease was attacked in a more or less general way, but without any specific plan.

A definite systematic mode of treatment of patients suffering from general paralysis was begun in the Connecticut State Hospital in 1920. For approximately five years these cases were treated with the usual specific remedies, consisting mainly of arsphenamine, mercury, and iodides. The results were rather discouraging and the number of remissions at that time showed no material increase over the spontaneous remissions in untreated cases. In 1926 the non-specific mode of treatment was resorted to and a considerable number of cases were given typhoid vaccine injections with the production of chills and fever. Several cases showed considerable improvement, but the results were still far from satisfying as there continued to be a large number of deteriorated, feeble, and bedridden paretics.

It was with a continued hope of greater success and with many encouraging reports issued by

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various psychiatric hospitals and clinics that we began, in 1930, the use of malaria for the cases of general paralysis.

At this time our treatment for these patients is confined to malaria, which is allowed to run a desired course and, after the termination of the disease, it is followed by a series of tryparsamide and bismuth injections.

That the results are very encouraging, and agree favorably with those of other hospitals and clinics, seems very gratifying.

The favorable results obtained with this form of treatment seem more outstanding, in view of the fact that the paretics committed to our state hospitals were, up to very recently, in the very advanced stages of the disease, with considerable destruction of nerve tissue, with marked deterioration and also in very poor physical condition. Since it is universally accepted that the best results with malaria are obtained in the early cases of neurosyphilis, it is felt that even a higher remission rate may be expected in the future, as the medical profession and the public are gradually convinced that the former hopeless attitude about the incurability of this form of disease is no longer warranted and that an early diagnosis and hospitalization for treatment are very important for the restoration of these patients to their normal mental and physical health.

The malarial treatment of general paralysis is a form of non-specific therapy of neurosyphilis and owes its origin and development to Dr. Wagner-Jauregg. Many psychiatrists had observed, as far back as 1887, that cases of general paralysis frequently showed marked clinical improvement following an incidental attack of some intercurrent infection or febrile disease, such as pneumonia or typhoid fever, or even a cellulitis or localized abscess. This observation led Wagner-Jauregg to study the effect on general paralysis of erysipelas, tuberculin injections, typhoid vaccine, and various albuminous substances, the injection of which produces the usual fever and phenomena of protein shock. As a result of his early experience Wagner-Jauregg was able to report that remissions occurred

much more frequently in cases of general paralysis in which a fever of some kind had been induced than in control cases in which no fever was induced. He finally turned his attention to the possibility of inoculating patients with some infectious disease of a not too dangerous character. In 1917 he began the use of tertian malaria as a fever-producing agent. He was soon convinced that it furnished a much more effective means of treatment of general paralysis than any of his earlier used fever-producing agents. Since that time the malaria treatment of general paralysis has been systematically used in many psychiatric hospitals.

In inoculating these patients the benign tertian malarial parasite is used because it offers best results and because of the ease with which it can be controlled. In this group of cases the malarial strain is maintained by direct passage from patient to patient and the strain can thus be maintained for an indefinite period.

Before treating these cases no particular selection of patients was made, and there was no attempt at grouping them as early or late cases. The treatment was given to all the patients suffering from this disease, some being in the very advanced stages and some even bed-ridden. The results obtained, which will be given later, were obtained in non-selected cases.

In transferring malaria from one patient to another, the blood of the donor and recipient was never typed before inoculation and in only two cases were reactions observed, and these were of a mild character. The blood was usually taken from the donor after he had had at least four or five severe paroxysms and at least two patients were inoculated each time. This was done primarily to preserve our strain of parasites in case one of the newly infected cases did not respond to the inoculation on account of a previously established immunity.

In inoculating patients two methods were used, the subcutaneous and the intravenous methods. It takes a slightly longer period of time with the subcutaneous method, but the certainty of successful inoculation is somewhat greater than with the intravenous method, and it also requires less blood. The technic is quite simple and lately this method has been used exclusively. A needle of general gauge, of about one and a quarter inches in length, is inserted into the loose subcutaneous tissue in the area of the angle of the scapula and two or three cubic centimeters of blood are then injected, a small amount in each of several directions radiating from the site of the puncture. This is for the purpose of spreading the blood over a large area, thereby increasing the likelihood of absorption and successful inoculation. A sterile dressing is then applied over the punctured area.

The incubation period in these cases is considered to be from the time of inoculation to the appearance of the first malarial paroxysm, and varied from six to eighteen days, the average being about fourteen days in the subcutaneous method. In a small number of cases a moderate rise of tem-

perature will occur several hours after inoculation, accompanied by headache and malaise, which will subside after twenty-four hours. After inoculation the temperature was recorded every four hours to the time for the occurrence of each chill, when the temperature was then taken every hour until it returned to normal. Each temperature rise which ran below 102° was disregarded.

The number of paroxysms in each patient ranged from five to fifteen and any case that ran less than five paroxysms was not counted as a treatment case. The patients for the most part were allowed to run at least ten paroxysms and only three cases ran five paroxysms each with spontaneous termination of the malaria. The marked variation in the number of paroxysms to which the patients were subjected was because of the difference in their physical condition.

The higher temperatures occurred in patients with the greater number of paroxysms and quinine usually had to be given to stop the paroxysms. Such cases gave the best remissions. The height of the fever and the greater number of paroxysms depended entirely on the reactive power of the patient. The periodicity of malarial paroxysms following inoculation did not occur every other day as in the naturally acquired malaria. A large number of cases exhibited the true tertian periodicity, some showed daily paroxysms as if from a double tertian infection, while others ran an irregular type of periodicity. Two or three paroxysms may occur every day, a fourth paroxysm two or three days later, and a fifth on the following day.

Medical treatment in these cases depended on the individual case. The heart and kidney function was watched carefully and cardiac stimulants were required in some. After the required number of paroxysms, quinine was administered to them in ten-grain doses three times a day for a period of two days, and after that five grains were given three times a day for a week.

The most frequent complications of malaria noted have been jaundice, herpes, and in two cases severe, sharp, neuralgia-like pains in the extremities during the height of the fever, but none of these was very serious.

In practically all cases a definite physical change was noted following treatment. While during the illness there is usually a marked loss of weight, this loss is made up quickly within a few days after treatment and the patient continues to gain steadily, frequently reaching a point far above his average normal weight.

Neurologically there is little change after treatment, the pupillary reactions and reflexes usually remaining unaltered, although frequently there is marked improvement in the ataxia, tremors, and speech.

The serological changes in the cases under treatment are not consistent with the clinical changes. An analysis of complete serological examinations in thirty-four cases made at regular intervals shows a tendency to a weaker Wassermann and Kahn reaction after treatment. In the spinal fluid the

cell count seems to be the first thing affected, decreasing markedly after treatment. The globulin became negative in a large number of cases, and the Wassermann reaction became gradually weaker. The colloidal gold curve dropped and became less typical.

The serological changes, however, are not always as marked as the clinical changes, as in some of our cases with almost complete clinical remissions there was only a slight change in the serology, while some of the deteriorated and unimproved cases showed considerable serological improvement.

In discussing the clinical changes obtained in the group of cases treated with malaria, Kirby's classification ("complete remissions," "moderate or partial remissions," "improved," and "unimproved") is used.

Sixty patients were inoculated with malaria, of whom forty-six were men and fourteen were women. All of the female patients were white, while of the male patients five belonged to the colored race.

Forty-one men and thirteen women responded with the typical malarial paroxysms, while all the five colored men and one white woman failed to develop paroxysms. Of the colored patients one was a juvenile paretic.

The classification according to the clinical results is based on the fifty-four cases which actually responded to the treatment.

Fifteen patients, or 27.7% of the group treated, showed a complete remission, with disappearance of mental symptoms. Some of these patients have been returned to their homes and are pursuing gainful occupations and appear normal in every way. A few more are in condition to be paroled home.

Seven patients, or 12.9% of the total number, belong to the group of moderate or partial remission. These patients have shown marked improvement in behavior, are steadily employed, and the mental symptoms have disappeared to a great extent.

Ten patients, or 18.5%, come under the improved classification. In these there is a definite and noticeable improvement, mentally, but they still present many symptoms. Most of these patients are employed usefully but must be kept under supervision.

The unimproved group consists of twelve patients, or 22.2%, who presented no noticeable improvement and in whom the treatment has failed to influence the progress of the disease.

Ten patients, or 18.5% of the total inoculated, died since the beginning of the treatment, but only two of these deaths occurred during the course of the malaria, while the others died a considerable length of time after the termination of the disease.

When one compares the percentage of paretic patients showing complete remissions following malaria treatment, which is 27.7% in our group of cases, with the percentage of spontaneous remissions in untreated cases as reported by Raynor, which was 3.5%, one feels that remarkable progress has been made in treating this disease. In

addition to this we should bear in mind the large number of moderate remissions and improved cases and we should feel quite hopeful about the future.

Another interesting feature of this treatment is the apparent improvement in the general health of the patients to the degree that we are now free from the bedridden paretics who were so common in hospitals before this treatment was instituted.

CONCLUSIONS

1. In our experience malaria treatment of general paralysis has proved most efficacious and there has been improvement in both the mental and physical condition in a large percentage of the patients treated.

2. Some of our patients have been away from the hospital for two years and have adjusted themselves well, showing no return of mental symptoms.

3. The serology tends to become negative and to return to normal, but this process is a gradual one and in many cases the serological changes are not consistent with the clinical changes.

4. Most of the paretics belonging to the colored race do not react to malaria and require other types of antiluetic treatment.

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Transurethral Resection of the Prostate: Improved Instruments and Operative Indications

Hugh H. Young, Baltimore (*Journal A. M. A.*, June 9, 1934), discusses the various operative procedures for transurethral surgery for the obstructing prostate and in pointing out the advantages of the perineal route he does not wish to condemn transurethral surgery; as a matter of fact, it is employed in his clinic with great frequency, and there are many cases in which it is distinctly preferable to prostatectomy. Both the electric and the plain cutting instruments are used. With the introduction of improved instruments, the tube for injections of procaine hydrochloride, the rotating angulated spear to secure larger excised masses, and the accurate fulguration of all bleeding points, much progress has been made. The advantages of the punch operation, with the spear technic, are briefly as follows: the simple convalescence, due to absence of slough, the comparative avoidance of infection and secondary hemorrhage, the quicker healing, and the greater freedom from suppuration and pain. The author states that in the more advanced cases of prostatic hypertrophy his punch, even with the spear, is not satisfactory. For such cases perineal prostatectomy is greatly to be preferred to any transurethral operation, even though it is possible to remove much tissue by the punch and by electroresection. The clean enucleation of hypertrophied lobes through the perineum is certainly more permanently curable and is accompanied by less suppuration and grave complications than after electroresection. Prostatic surgery has now arrived at a point where it is one of the safest major operations. By means of transurethral surgery and accurate visual perineal prostatectomy, the high mortality of the past should be completely eliminated and many more cases of carcinoma recognized early and cured.

Lissauer's Type of Dementia Paralytica

• Joseph Smith, M.D., Brooklyn, N. Y.

DEMENTIA paralytica is a well known syphilitic disorder of the nervous system. The older psychiatrists were in the habit of referring to it as a parasyphilitic affection, chiefly because the presence of the spirochetes in the brains of paretics had not as yet been demonstrated, and also on account of the long latent period of the disease. The first manifestations of the paretic process have been known to appear 20 or 30 years after the initial lesion, even in cases that have received thorough treatment in the primary stages of the disease. The usual antisyphilitic remedies which have proved so beneficial in the primary, secondary and tertiary manifestations of syphilis have been found of little or no value in paresis. All these considerations have tended to make it appear that paresis is not properly to be considered a syphilitic process.

The pathological changes in the brains of paretics can be summarized here. The cerebral hemispheres show diffuse atrophy, the shrinkage affecting especially the frontal lobes. The thickness of the cortical layer is reduced. There is marked destruction of the cellular elements and replacement by glia cells. The pia is uniformly thickened and milky white in appearance. There is an adhesive leptomeningitis, and the pia and the adventitia of the blood-vessels are infiltrated with small lymphocytes. The cerebrospinal fluid is in excess and shows a lymphocytosis. It gives a positive Wassermann test, a positive colloidal gold reaction and an increase of globulin. Pathologically, then, the disease manifests itself as a widespread disorder, the frontal lobes bearing the brunt of the attack. These findings can be exactly correlated with the clinical picture of paresis. With the demonstration of the spirochetes in the brains of paretics by Noguchi and Moore the etiological relationship between syphilis and paresis was definitely established. This put an end to the vague notions once current that mental strain, a life given to ambitious schemes, frustrations and similar factors were either directly or indirectly the cause of paresis.

The symptomatology of dementia paralytica as it occurs in a great majority of cases is as follows: After a latent period of from 10 to 20 years, the patient begins to manifest mental symptoms—he becomes forgetful and makes mistakes in calculation. He is inattentive and shows an inability to grasp complicated problems. He exhibits lack of judgment in ordinary and routine matters. He is irritable and fails to see that he does wrong things. A certain carelessness in attire, a disregard for ordinary proprieties, explosive laughter or talkativeness may one and all characterize the onset of the malady. In the so-called expansive types, he may have grandiose ideas. The patient embarks on reckless expenditures, becomes hyperactive and gay and evolves all sorts of fantastic schemes. However, neither the exuberance of spirits, nor the hyper-

activity, nor the ideational content have any similarity to the excitement of the manic. The utterances of the manic are bright, jolly, and interspersed with witticisms, showing that he is keenly alive to situations. The manic's rapid flow of ideas makes it impossible to pin him down to any objective. His activity is the result of an inner urge or drive (the most important symptom in mania), and not the outcome of delusions such as those of greatness of the paretic. The jolly liveliness and the richness of his outpouring are replaced in the paretic by a meaningless and colorless activity. General paralysis is primarily a mental disease. The outstanding symptoms are manifested in the psychic activities of the patient. We find, however, on the physical side, definite pathologic changes. The pupils are apt to be unequal, irregular and fixed to light; the knee jerks, hyperactive or lost. A coarse, jerky tremor of the tongue and a slurring speech are almost pathognomonic. Most paretics show the mental and physical disturbances mentioned. As the case progresses a greater degree of mental deterioration sets in, leading to a veritable imbecility. The patient shows gross memory defects, cannot do the simplest arithmetical problems, he is completely disoriented, and his speech becomes unintelligible. In the final stages he lies in bed with contractures and bedsores and exhibits extreme bodily wasting; there is annihilation of all mental faculties, and the patient may even eat his own feces. Such is the fate of the average case of paresis most commonly seen in institutions. Since the introduction of the malarial treatment we fortunately seldom see these terminal stages of this disease.

LISSAUER'S TYPE OF DEMENTIA PARALYTICA

That there are varieties of general paralysis which vary from the average or most frequent type here sketched has, of course, long been known. Variations occur in the onset, course, manifestations and the outcome of the disease. The onset may be acute, with an epileptic seizure or apoplectic form attack. There may be a status epilepticus, terminating fatally in a few days. Other cases begin with a convulsion, followed by temporary aphasia or hemiplegia, or both. The patient may rapidly deteriorate after such seizures. These irregular varieties of the disease, characterized by gross neurologic disturbances, have received the generic name of Lissauer's type of general paralysis. They are often difficult to differentiate from cerebrospinal syphilis. The comparative stability of the symptoms in the latter disease and the fleeting or temporary character of the same manifestations in the paretic, the grave mental disturbances in dementia paralytica, the pathognomonic speech disorder and the characteristic jerkiness of the protruded tongue are criteria for differential diagnosis between these two affections. Occasionally these neurologic disturbances may be quite lasting. The

remarkable feature about this type of general paralysis is that the intelligence may for a long time remain but little affected.

PATHOLOGICAL ANATOMY OF LISSAUER'S TYPE OF GENERAL PARALYSIS

Although this paper is intended as a clinical contribution to the subject of Lissauer's type of general paralysis, it will not be out of place to briefly summarize the pathological findings in this disease.

Lissauer's original paper was published in 1901.¹ In 1904, Alzheimer made an exhaustive study of the pathology of Lissauer's disease². In addition to the usual findings in the brains of paretics which I have already described, Alzheimer reported extensive brain atrophy. This atrophy may affect any lobe. It may involve the cerebellum and the basal ganglia. Microscopic examination shows, in the atrophic regions, extensive vacuolization, principally in the second and third layers of the cortex. On account of the spongy appearance it presents this morphological change has been named status spongiosus. Another constant change found affects the white matter, and consists in the loss or destruction of the myelin sheath of the nerve fibers in the convolutions. In a paper which appeared in May, 1933, in *Archives of Neurology and Psychiatry*, Merrit and Springlova reviewed the literature on the subject and added eight cases of their own. Only 35 cases were reported in the literature. The most interesting and in a way surprising single phenomenon in the clinical histories of these 35 cases is the high percentage (50%) of aphasic disturbances among them. The remarkable uniformity of the pathological alterations in the brains of Lissauer's disease would lead us to the assumption that we are dealing here with a unique entity. This, however, is not the case. Spatz,³ for instance, believes that in dementia paralytica there are many transition forms, concerning which it is difficult to say whether they belong to the usual type or Lissauer's type of the disease.

CASE REPORTS

I will now present the histories of three cases observed during the past year on my service at the Kings County Hospital.

Case 1 is that of a man (W.K.) 44 years of age. Twenty years ago he acquired syphilis. Six years ago there was a sudden outburst of temper and he became forgetful. At the Cornell Clinic a diagnosis of cerebrospinal syphilis was made and he was treated with tryparsamide and bismuth. Nothing more was noticed until a few days before admission, when he suddenly lost his speech. When admitted to the hospital he was totally aphasic; his pupils were sluggish; knee jerks hyperactive. There was a positive Oppenheim and ankle clonus on the right side. Blood and spinal fluid were strongly positive and there was a slight lymphocytosis in the spinal fluid. The colloidal gold curve was positive. After two days his speech returned and he was able to converse. He said: "For a while I could not speak; I am as well now as I ever was; I had treatment for syphilis. This is April (May), 1932." The patient was dull, there was impairment of

memory and he was euphoric. His speech was characteristically slurring. This case was diagnosed as one of Lissauer's type of paresis. The outstanding features here are the long prodromal period and the signs of syphilitic involvement six years ago. The sudden onset of motor aphasia and of pyramidal tract signs in the right lower extremity, the characteristic speech defect and the slight mental impairment decided the diagnosis.

Case 2 is that of a middle aged man who was admitted to the hospital in October, 1932, with the history of a chancre fifteen years ago. Six months before admission he noticed weakness of the left upper extremity; sometimes it would "shake." This condition cleared up. Three weeks ago he lost his memory for 4 days. He wandered about and was picked up by the police. Two weeks ago his left arm suddenly began to twitch and there was weakness of the left side of the body, with dragging of the left leg when walking. He also experienced difficulty of speech. When admitted to the hospital he showed paresis of the left upper and lower extremities, the left pupil was irregular and fixed to light, and the right was sluggish; the deep reflexes were definitely increased on the left and moderately increased on the right side. There was a positive Babinski and ankle clonus on the left side and a tremor of the facial muscles and tongue. Speech was slurring. The blood pressure was 130-90; Wassermann of the blood and of the spinal fluid was four plus. The patient said: "I had a nervous breakdown; I am all right now; fifteen years ago I had a chancre; later I had a skin rash, but I am all cured now. I feel very strong; I am happy; I don't want to go home yet; I don't know what date is today." The patient was incontinent. Here too, as in the first case, the diagnosis is quite clear. The gross neurological signs, the presence of a hemiparesis, the characteristic speech defect, the euphoria and the mental enfeeblement are conclusive.

Case 3. A policeman, about 38 years of age, was admitted to the hospital in a comatose state. It was stated by his relatives that he was always a very powerful man and had never been seriously ill before. There was no history of syphilis. Two days before admission he had complained of headaches. On that evening, while he sat reading the newspaper, the paper was seen to fall out of his hands as he fell to the floor in convulsions. During the evening he had a number of convulsions, and he was brought to the hospital shortly after midnight. I saw him at 1 A.M.. He was having generalized convulsions, not of very severe grade; his head and eyes were turned to the left; there was apparent a flaccid paresis of the right side. The left pupil was dilated, the right normal; both reacted well to light. Occasionally nystagmoid twitchings were observed. The blood pressure was 150-95, the pulse rate 120, the heart and lungs were normal, and the body temperature was slightly elevated. Right ankle clonus and Babinski were present. The abdominal reflexes could not be elicited, perhaps on account of his obesity; the left cremasteric was present. He remained unconscious for several days, and repeatedly had mild convulsions. At times there were twitchings, confined to the right side. On the third

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Personality and Emotional Factors In Reactive Negativism

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"What is man, that thou art mindful of him? and the son of man, that thou visitest? him." *Psalms VIII. 4.*

IT is evident from our best recorded early works that personality questions had made their appearance, and it is well said that whatever else man may be he is a complicated and poorly understood entity, a creature well worth careful study, particularly as to the thinking processes and all that goes to make up a human being apart from the physical body.

Personality, though generally thought well known, is very difficult to define adequately, but might well be considered that combination of history we have made from birth, plus prenatal disposition or gene inheritance. We think only with a very small part of our past, but it is there, and with it we will or act. We all appreciate that the success or failure of normal development may depend upon numerous and various factors, all intensely interwoven with one another. There may exist poor bodily health, dependent upon some genetic disturbance, or an improper balance of our endocrines, a nervous system incapable of functioning in proper form, and the less well defined inherent defects that prevent the normal development of the instinctive and emotional life as a whole. Although one or more of these factors may be present in a great majority of those, so to speak, failing to make the grade, we cannot ignore the fact that the stumbling block may not be entirely within the person, but may in part be due to faulty environment.

We may well speak of two large reaction types of individuals, termed by Bleuler syntoid and schizoid personalities, though perhaps better described, by Jung, as extroverts and introverts. The former is a well balanced, harmonious type who blends well with his environment, resulting in accord of feelings and strivings. This makeup through the vicissitudes of life carries a fundamental temperament from the cradle to the grave and even in illness shows an adaptable range of cheerfulness and sadness.

Now, in contrast the introverts are more introspective, visionary and withdrawn from reality, their motivation derived from within, embracing the less differentiated man who has difficulty in bringing to focus his struggles during environmental stress. The schizoid person is biologically immature, imperfect morphologically and probably suffering from a specific type of cerebral defect. He is inadequate to cope with reality and if the discrepancy progresses and becomes sufficiently great,

he will automatically revert to modes of reaction belonging to a lower level, comparable to the immature level of his personality with behavior on a level of biologic differentiation for which he is more adequately equipped. It is here we see the result which is so dependent on the personality with inability to effect compromise, adjustment and adaptation. This quality begins very early in life, as gauged by the attention paid to things, and the ease, interest or shyness displayed.

Affect and emotion so frequently appear together that behavior is apt to be labeled with either term and, though associated, they are, however, far from identical. The unreflective immediate reaction we call instinctive; it is not an inevitable accompaniment of emotion. In ourselves we never confuse the affect with the impression of emotion, but as to others we always do, and psychologists have assumed that affect is open to objective observation. An affect has not and cannot have existence until it is conscious, because it is something that a person feels. Whatever may be its cause, it does not exist until it is felt.

A good example of affects seemingly intrinsic in the perceptions themselves and therefore of the "cognitive type" of which James speaks, is seen in different kinds of quietness. There is the stillness of the city streets at 3 A.M., the stillness of Sunday, the startling quiet of the country after alighting from a train, or the muffling sound of a snowfall. In each of these the stimulus is the same, a contrast, a lack of noise. Yet, with each there is quite a change of feeling and the differences are plainly to be traced to the association which each situation calls upon instantaneously.

According to MacCurdy, "Affect is any subjective experience that, when examined introspectively, is considered to originate in or belong to the subject's individual organism. It may be felt to be either mental or physical, to be stimulated by sense perception, by a thought, or to be causeless." In other words, the affect is a production of subjective consciousness elaboration of some stimulus.

When we respond immediately and adequately to the stimulus presented, we are not aware of emotion, yet, when there is a hesitation of performance of an instinctive act, emotions appear. This hesitation is occasioned by the presence in the mind of alternative plans of action, recognition of the incompatibility of the instinctive action with moral conflicts, etc.

There must be externalization of attention to environment before a mood becomes evident and the disappearance of affective impulses leads to objec-

tive apathy, while the intellectual functions fail for lack of emotional power to keep them going. When these inhibitory influences are removed as the result of functional disintegration, primitive reflexes control the type of response to such an extent as to make them stand out conspicuously.

The quality of the emotion is determined by the sum total of complexes or feelings that are activated and that thus have a wide range of variability with results dependent upon dominance over other instincts. Behavior may not be simply determined by the immediate situation but may be the product of many stages in our development. Thus we expect to see reactive types of cerebration characteristic for a given stage of life far removed from the present. Particularly is this seen in the regressive mechanisms of stupors. It is their meaning which determines the type of emotion that appears, or indeed, if there be any at all. So the nature of the association ensuing on presentation of the stimuli is an even more important object to study than the discovery of what is the immediate extent of the feeling.

We may well assume that any profound change in the psychic life which indicates a destruction of the personality must in itself influence the attitude towards the outer world, and the most natural protective measure of the weak consists in shutting up and hiding. Thus we see the general change of the personality and its behavior toward the ordinary events of life that come into consideration as it is conditioned by the perception of its own inner want of independence. The disturbance of the will long precedes the onset of schizophrenia as a life trauma, making contacts unendurable, for he who is unable to control his own will, and with it his life, gladly takes refuge in the realm of fancies.

The capacity to go into a stuporous state may be looked upon as symptomatic rather than a disease entity, more of a defense reaction indicative of the constitutional makeup. It is in this light that we might well consider negativism as partly a reactive mechanism, and thus the function of self defense is seen to be served both by certain symptoms of schizophrenia and by the magic of primitive races with archaic phenomena serving a protective purpose.

It is quite well known that when satisfaction is not obtained in life's actual experiences, so-called regressions occur, and with the introvert the strong tendency is to earlier types of satisfaction. The external lowering of energy and initiative may be due to the extra energy expended in the process of repression and thus taken away from activities. What we do see is an absence of emotion, or reduction to a mere dazed bewilderment, explainable through our knowledge of infantile unconscious strivings, which furnish the most deep seated motives in the interplay of adaptive or non-adaptive personality traits with disassociation of affect and ideas. This is largely Bleuler's view, namely, that the emotional disturbance and negativism is due to

contact with the complexes, the sensitive traumata of life.

Kraepelin, on the other hand, assumes that this confusion in the emotional life is caused essentially by the weakening of the higher permanent feelings, whose task it is to give to our inward states permanently equitable tension so as to become security for the agreement of our emotional relations with the outer world. Weakening of the volitional impulses arises with a growing susceptibility of the will to influences from within, with tendencies to automatic obedience of self to the exclusion of external needs or desires, and, with a suppression of volitional movements by contrary impulses, gives rise to mental negativism, which plays such an active role in schizophrenia. That hindrance is the train of thought due to immediate disorder of inner actively of volition which regulates the rising into consciousness and the connection of ideas.

The behavior of the psyche of the patient toward the negativistic symptoms is variable. They may be fully united with the conscious and the patient fails to react, and then upon persistence becomes irritable exactly like a well person who wishes to know nothing of his environment. At the other extreme the negativism emerges from the unconscious, shown by delusions and hallucinations, at which time, at first, the subjects themselves are surprised and against which they themselves even defend themselves for a time, but finally control is lost. Contrary impulses and inhibitions of all sorts arise, preventing these subjects from doing what they have in view, so that commonly they believe in the influence of a stronger force.

An attempt has been made to explain negativism upon the basis of muscular disturbances. Lundberg, for example, finds a similarity between the catatonic muscle phenomena and myotonia, and thinks that many patients, in spite of wishing to, cannot move and therefore are apparently negativistic. This seems hardly plausible, for the motor stimulus starts or is controlled from the motor cortex, and though the outer picture of negativism may be produced through not being able to act, it is not through motor hindrances but as the result of a psychic interference—the inhibition of a purpose brought about by a contrary affect. This occurs naturally in schizophrenia and it is highly doubtful if there ever exists true motor disturbance either at the root of negativism or elsewhere. The conception of direction of the will (ambivalence of the will), which is conditioned through anxious helplessness to express itself or to act, owing to broken continuity of the ego not allowing the psychic processes to reach consciousness, seems plausible as to the causative factors.

When, as in negativism, each impulse is opposed by a contrary impulse and the psyche is so split that each of these two tendencies can independently assert itself so that a compromise between them is

impossible, or made very difficult, then the anti-tendencies manifest themselves. When an idea stimulates its opposite, and the thought becomes split and unclear so that criticism is difficult, the antithesis is apt to acquire undue weight, and under certain circumstances replace the thesis. The latter, especially, because the patients, with their changed feelings and thinking, are often actually compelled to see the thing in an unusual way. In cases where each thought compelling the thinking of a contrary thought gives rise for conjecture, then preference escapes as a factor to coordinate motivation. Also the dream of the normal, in which many an idea is represented by its opposite, appears to point to an active predilection for the negative. Perhaps also the mechanism of wit, which often replaces one thing by its opposite, has a point of contact with intellectual negativism.

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In more profound reactions, where there is extreme degree of illness, we see stuporous reactions very difficult to differentiate, and it is here that a thorough understanding of the personality will give much aid, being ever mindful that types of makeup are not straight but greatly blended, and a careful balancing of dominance must be duly evaluated.

The conflicts of man are many and a fairly consistent tendency in us all is for peace and quietude, but clashing with this desire for calm and rest arises the urge for power and influence which never ceases nagging at us, until old age or illness dims perception and we pass into retrogression. So it seems that we are ordained to go through life the host of these opposing tendencies, supremacy and repose, and a disturbance of adjustment in either may give rise to distorted processes of thinking to the extent of profound illness.

Lissauer's Type of Dementia Paralytica

(Concluded from page 373)

day he opened his eyes and there was a definite weakness of the muscles of the right side of the face. He had Jacksonian-like twitchings of the right side and he became cyanotic. Oxygen was administered and various antispasmodics were given. The convulsions became less frequent and milder in character. His body temperature rose to 101.4 F. and there was evidence of hypostasis of the right lower lobe. This condition cleared up in a few days. Wassermann of the blood and of the spinal fluid was four plus, globulin was in excess and there was a positive colloidal gold curve. The Babinski sign was elicited at times. The patient stared at the examiner and smiled. Five days after admission examination showed a fine perioral tremor, thick speech with characteristic slurring, and marked confusion. Convulsions did not recur. The patient, however, became restless, struggled to get out of bed, was markedly confused and showed definite verbigeration and sensory aphasia. He was

unable to name objects in common use, such as a knife, pen, watch, coin. Spontaneous speech was paraphasic. In answer to a few questions he said: "I have children, thirteen years and three months. I am not sick, I have not what you call sickness, just unoccupied for two months, unoccupied for two months. Now I am patrolling, I am not on patrol duty yet, I am just unoccupied, don't need to work. I am a patrolman of New York City, thirteen and two months. It is every month, every two months." The patient was treated with bismuth and tryparsamide; at times mercury and potassium iodide were administered. He was transferred to a State Hospital, where he received malarial treatment. I saw him about four months later. His speech was still somewhat drawing, but otherwise he had made a fair recovery. However, knowing how often remissions occur in this disease, one must be guarded in one's prognosis. This case interested us very much and we gave him all the attention he required. The most important features were the sudden onset with convulsions, a status epilepticus, and the signs of local cortical irritation and of pyramidal tract involvement.

COMMENT

We have presented here only a clinical study of three cases of Lissauer's type of dementia paralytica. In pronounced, or most typical cases, both the clinical and the pathological pictures are distinct. Yet, as has been observed before, Lissauer's disease is not a new disease, but a syndrome in general paralysis with special localization and characteristic lesions. Lissauer's type of paresis is a not infrequent condition. Its frequency, however, is likely to be underestimated, principally because its recognition may not be easy. So often does it have the impress of syphilitic thrombosis of the cerebral vessels that a correct diagnosis is not made. Few would be bold enough to make a diagnosis of paresis on the strength of the characteristic speech disturbance, the perioral tremor and the jerky coarse tremor of the tongue. Yet, in typical cases, they are infallible signs. It is manifestly difficult to convey an adequate idea of the speech disturbance in a paretic by merely describing it—one must observe the patient's mangled speech and compare it with the bulbar, apoplectic, multiple sclerotic, myasthenic and other speech disorders.

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780 St. Marks Avenue.

A Color Scheme

To avoid a colorless existence, keep in the pink of condition, do things up brown, treat people white, be well read and get out on the golf green under the blue occasionally.

Ringworm may be an autoinfection. There may be a small spot in back of ears, on hand or between toes, which causes another infection in same person, especially during summer.

Studies In Diabetes

5. Causes Of Diabetes

• George H. Tuttle, M.D., South Acton, Mass.

THE causes of diabetes are not anatomical and let us say once for all that the chief cause is not degeneration of the insulin cells of the islands of Langerhans. Logan and Gibbs, Root and Warren, and Warren himself in an analysis of 300 cases find little or no distinctive pathology in the pancreas; and the history of one of my own cases still more vividly convinces me that diabetes does not depend upon any anatomical degeneration in the pancreas. This case was that of a boy 12 years old who died of acute pancreatitis and was autopsied by Mallory of the Massachusetts General Hospital. This diabetic boy was kept in perfect conditions of growth and general health for five years with the aid of 12-15 units of insulin. The sudden death of his mother threw him upon his own resources and he soon lapsed into bad habits, developing acidosis and finally coma as a result. He was treated for coma and brought completely out of it, but two days later abdominal pain, vomiting and a steadily rising temperature set in and he died. At autopsy the pancreas was found entirely normal as regards the islands of Langerhans, although the boy had had diabetes for five years and had recently passed through its three stages of glycosuria, acidosis and coma, before death from acute pancreatitis. Why cling longer to this discredited and false idea of the cause of diabetes?

prevent the development of the duodenal hormones, secretin and duodenin, which are necessary for such discharge, and it is also easy to imagine from some experiments which have been made lately by Housay¹ that a hyperpituitarism might restrain the action of the neurogenic insulin center in the brain and thus prevent the normal discharge of insulin from the pancreas, bringing about a diabetic state. Yet all of these influences are entirely outside the pancreas and may operate to produce diabetes, although the pancreas and its islands of Langerhans are perfectly normal.

But there are still other theories of the present day which must be thrown overboard before we can get a clear comprehension of the cause of diabetes. The chief of these is that all of the insulin of the body comes from the pancreas. This is not so and it is a fact that the pancreas is only a late creation for insulin production, in the evolutionary development of animal life. No animals below vertebrates have a pancreas and yet complete metabolism of carbohydrates and fats is performed by them. Moreover, in a recent study of the detailed metabolism of a single depancreatized dog, I have been able to prove from mathematical calculations based upon the data of one of the most expert workers in that field, that this dog, 17 days after the withdrawal of insulin and raw pancreas, actually metabolized 61% of the total glucose of his food by means of the tissue insulin (cellular insulin) still functioning within him after entire removal of the pancreas. In other words, the pancreas normally provided only 40% of the insulin supply and the tissue cells furnished the balance. But these calculations show another very important action which may be of use in treatment, i.e., that this cellular insulin gradually increases in amount under the stress of necessity and the stimulation of the high blood sugar of the diabetic state. Perhaps it may be possible to stimulate it in human diabetics; at least Thalhimer's experiment with intravenous glucose, causing an increase of insulin up to the point of hypoglycemic convulsions, as well as some of the effects seen from rectal injections of glucose, show how this insulin may be stimulated.

Now if there are two insulins in the body and diabetes is acknowledged to be caused by a deficiency of insulin, then it is obvious that this deficiency may be of the cellular as well as of the pancreatic insulin, that is, it may be of either or both.

The cellular insulin, of course, is produced by the tissue cells and it is conceivable that any general influence, such as an anemia or an infection, might reduce, inhibit, or even abolish the cell action necessary for the production of this insulin, so that a severe diabetic state would develop if these cells were the only source of insulin supply; it is for this reason, as well as to prevent the blood sugar rising too high and flowing over the kidney thresh-

The cause or causes of diabetes are not to be found in pathological changes within the confines of the pancreas, and yet, paradoxically, the chief cause of the great majority of cases of diabetes is the imperfect functioning of the pancreas itself in performing its duty of producing and discharging its insulin into the blood. It may produce insulin, quite normally, but if it does not discharge it normally then diabetes results. With this idea in mind I recently made a study of all the facts concerned in the physiology of the pancreas as regards insulin and correlated them in an article published in the *Lancet* of September 23, 1933, in which I pointed out that the two channels through which the pancreas was induced to discharge its insulin were the neurogenic center in the brain, which is stimulated by the rising blood sugar following a meal (La Barre) and the humoral stimulus of the two duodenal hormones, secretin and duodenin, which are brought into existence and into action by the hydrochloric acid from the stomach. Now it seems evident that even though the power of producing insulin were perfectly normal in the pancreas, the interference by any cause with the normal functioning of either the neurogenic or humoral stimuli of the discharge of insulin into the blood by the pancreas would cause a diabetic state to develop. It is easy to imagine that a lack of acid might

old, that an extra source of supply from the pancreas is required in the higher animals. The pancreas, with its enormous blood supply, much greater than the tissue cells, is enabled to resist these influences and go on producing insulin to make up the deficiency, especially as the pancreas has a great reserve of productive power, as proved by Minkowski, who found that only one-sixth of it was necessary for normal metabolism without diabetic symptoms. It seems to me that in pernicious anemia the cellular insulin must be at a very low state of production owing to the lack of oxygen carriers, and I would expect for this reason to find some glycosuria in all well-developed cases, but it is only found occasionally and in such cases I believe hereditary diabetic taints will be found. This must be due to the fact that the pancreas makes up this deficiency of the tissue insulin by increased insulin discharge on its part. As long as the various parts of the sugar machine which control the production and discharge of insulin from the pancreas function normally, the pancreas can increase its supply and compensate to almost any extent for the deficiency of the other or cellular insulin, but in other stages of pernicious anemia, where the absence of gastric acidity has become marked and the humoral stimuli of the discharge of insulin, i.e., secretin and duodenin, cannot form on account of lack of hydrochloric acid, then a deficiency of pancreatic insulin in the blood arises which may be compensated for by an increased action of the cellular insulin; and as long as such compensating action continues no glycosuria appears. This probably accounts for the infrequency of glycosuria in pernicious anemia, and in those cases in which it does occur it is likely that it is due to a preexisting diabetes, rather than to the anemia; in fact, Root has shown that the diabetes usually precedes the anemia. But under normal conditions the pancreas is called upon for only 40% of the insulin supply, while the cellular insulin provides the balance necessary. The two insulins act as complements of each other.

but not very often. Hyperthyroidism is a case in point. Excessive action of this gland cannot start a diabetes *de novo*, but if a mild diabetes, perhaps hereditary, already exists, the increase of the metabolism of all elements in the food or in the body throws such a great burden upon the metabolic machine that the combined efforts of the pancreas and the tissue cells are insufficient to produce enough insulin to take care of the carbohydrate and fat metabolisms, so that glycosuria, acidosis and coma result. Now this influence is entirely outside of the pancreas and, moreover, when this thyroid condition is overcome by treatment, we find the sugar metabolism returning to normal except in those cases where there was a preexisting diabetes. In the same way excessive functioning of the anterior lobe of the pituitary may so increase the inhibitory effect which this gland normally exerts over the production of cellular insulin that a deficiency of total insulin and diabetes may result. This can be seen from the very recent experiments by Housay of Buenos Aires upon depancreatized dogs. If two such dogs are used and the pituitary is removed from one of them, six or eight times as much sugar, as glycosuria, will be excreted by the dog with a hypophysis as by the one without it, showing that when the normal restraint upon the production of cellular insulin which the gland exerts is removed, more cellular insulin is produced, more sugar is oxidized, and less glycosuria occurs. This influence is also entirely from outside the pancreas.

It is my opinion, therefore, that anything which interferes with the proper functioning of any important part of the sugar machinery may be a cause of diabetes. In other words, there is no universal cause.

Before considering still further the causes of diabetes I must say that this can only be done in a general way, and in thinking of the subject I like to compare the sugar machinery of the body with the complicated machinery of the automobile. If all parts of these two machines work perfectly, no diabetes results, on the one hand, and the auto runs perfectly on the other; but if one single necessary or fundamental part of the automotive machine doesn't function the machine doesn't go. And yet many minor parts may not function, as in old Fords, and yet the machine moves along. In this same way the human machine of sugar metabolism moves on with a diabetic handicap, which is caused by defects in some of its minor parts. We must study these minor parts and how to repair them. In many cases of diabetes the fundamental sugar machinery is all right, but some extraneous influence entirely outside it makes it impossible for the machine to function. Sometimes this influence may be the hyper or hypo action of some endocrine gland,

Every person inherits a sugar machine with a certain capacity for the metabolism of sugar and fat; when this capacity is below the requirements for normal growth such individuals may be called natural diabetics; and overfeeding beyond these limits will undoubtedly produce a progressive diabetes. But, on the other hand, overfeeding in itself cannot produce diabetes when the capacity is great, as can be easily seen in the case of hundreds of overfat people (200-400) who haven't a trace of glycosuria or abnormal blood sugar. Excessive action of the thyroid gland, by increasing general metabolism, may overtax this hereditarily weak sugar machine and produce diabetes. Excessive action of the anterior lobe of the pituitary may diminish the supply of cellular insulin and thus reduce the capacity of a sugar machine already weak through hereditary taint. Also a disease of any organ having important functions to perform as a part of this sugar machine, as the liver or the lungs, which during a pneumonia, for example, may interfere with the oxygen supply for the metabolism, may thus render a hereditarily weak sugar machine so much the weaker.

Pernicious anemia, through its lack of oxygen carriers, may produce a like effect where there is a pre-existing hereditarily weak sugar machine, thus accounting for glycosuria in some of the cases.

(Concluded on page 383)

Experiments in the Treatment of the Intestinal Phase of Vitamin B Deficiency in Man

• J. Arthur Buchanan, M.D., Brooklyn, N. Y.

CERTAIN specific physical lesions in the body have been demonstrated to be due to the absence of essential, although in some instances unknown, constituents of foods. The basic criterion of vitamin B deficiency in man, as well as in animals, is the dilatation of the stomach and cecum. However, in man, in addition to this phenomenon, vitamin B deficiency also causes changes in the nervous, osseous, cutaneous, and vascular systems. It must be borne in mind that a person with intestinal changes caused by vitamin B deficiency may also be suffering simultaneously from the effects of other known biologic agencies of disease production. In fact, under such a condition there is apparently greater susceptibility to certain infections.

Although patients with intestinal manifestations of vitamin B deficiency are numerous, they are not all diagnosed in a manner which brings to the foreground the fundamental changes in the body. The following cases are reported for this purpose, and to adduce a method of treatment that has been successful in instances where the physical changes were not too far advanced.

CASE REPORTS

Case 1. Mrs. C. A., aged 24 years, who had been married for four months when first seen, and had never had any serious sickness, began to suffer from extreme fatigue in the mornings, accompanied by loss of appetite. These symptoms continued for two months, combined with the formation of a large amount of gas in the stomach and intestine, associated with a feeling of warmth in the epigastrium, and she began to have pain in the epigastrium three to four hours after eating. All the symptoms were becoming more pronounced. The blood pressure was 105 systolic and 70 diastolic; pulse 73 each minute; weight 111 pounds, and height 64 inches.

On examination the stomach was markedly dilated, so that loud splashing sounds could easily be produced by palpation. The cecum was large and sensitive. The gastric analysis showed a retention of 225 cc., with a free HCl of 8, and total acidity of 12. Lactic acid was present. The roentgenogram of the stomach showed a prepyloric ulcer, with dilatation of the stomach.

She was placed on the routine treatment, and all of her symptoms diminished rapidly. At the end of two years she was free of symptoms, the cecum was not tender, and the dilatation of the stomach much less.

Case 2. Mrs. A. S., aged 64 years, widow, her

first husband having died of cerebral hemorrhage, the second by suicide. She had had two miscarriages by the first husband, a hysterectomy for fibroids at 49 years of age, and a duodenal ulcer when 26 years of age from which she had repeated hemorrhages. She was first seen July 7, 1930, and at that time had been sick for two years, suffering from nervousness, exhaustion, and attacks of nausea, associated with the formation of large quantities of gas in the stomach, dizziness, film before the eyes, headaches, and rapid heart action. The day following an attack a papular eruption would appear over the nose and upper lip. The stools were liquid. Between attacks the bowels were constipated. The time for blackberries to pass through the intestinal tract was found to be five days. At the time she was first seen she was suffering from a sense of nausea every morning, gas in the stomach and pain in the back of the head. The appetite was good, but she had become so exhausted that she was unable to leave the house unless it was absolutely necessary. During the last few years the joints of the fingers had gradually enlarged and were stiff and painful.

She weighed 144 pounds (usually 150 pounds); height 66 $\frac{1}{4}$ inches. The blood pressure was 170 systolic and 98 diastolic. The stomach was markedly dilated, with splashing sounds. The cecum was considerably enlarged and tender. The reflexes were all normal, the terminal joints of all fingers were enlarged, and several of the middle joints enlarged and deformed. There was an effusion into the right knee joint. The gastric analysis showed normal figures, with moderate retention.

The patient received the usual treatment. In three months the symptoms were all diminished, and the effusion had disappeared from the right knee in the early part of the treatment. After two years of treatment she was entirely free of all intestinal complaints, had no pain in the joints of the hands, and they were less stiff. She is well at present.

Case 3. Mrs. A. F., aged 27 years, married for three years, menstrual history normal. She had had measles, mumps, chicken pox, and acute catarrhal jaundice. Patient came under observation because of continuous pain over the right eye and a numb sensation in the throat as well as in the right leg and thigh. The symptoms had been present for one year and were getting worse. She had recently developed pain in both forearms. The appetite was good, but the bowels were very constipated, and at times she had slight pain in the right side of the abdomen.

There had been no loss of weight, and the blood pressure was normal. The physical examination showed a slight enlargement of the thyroid, and the stomach was markedly dilated, giving a loud splashing sound on palpation. The cecum was not palpable.

At the end of eighteen months of treatment the bowels were entirely regular without laxatives, the pains had disappeared, and the thyroid was no longer palpable. At the end of three years the patient is healthy.

Case 4. Mrs. M. I., aged 28 years, who had been married for two years and whose menstrual history was always regular until the onset of the present illness, when it became irregular and scanty, came under observation with pains in the joints, weakness, and loss of weight. The illness had begun five months previously with pains in the joints of the hands, shoulders, and finally in the knees. Just before the examination all of the joints became worse, and she walked with difficulty. She was suffering from weakness and inability to sleep because of pain. She was irritable, nervous, and perspired a great deal more than usual. She had had no fever. The appetite was poor, but the bowels moved three or four times a day. The heart had been rapid for several months.

The height was 59 inches, the weight 82 pounds, pulse 120 each minute. The blood pressure was 110 systolic and 70 diastolic. The thyroid showed smooth, firm and bilateral enlargement with murmurs at all four poles. There was a slight effusion into the knee joints, and the joints of the fingers were slightly swollen and tender. The stomach was dilated, with a loud splashing noise on palpation. The cecum was palpable. The basal metabolic rate was plus 30. It was obvious that this patient was suffering from exophthalmic goiter and polyarthritis.

The patient was given the usual treatment with increasing doses of Lugol's solution. In two weeks the pulse was 102 each minute and she had gained one pound. All pain had left the joints and she walked readily. In six weeks the pulse varied between 78 and 84 each minute, and the weight was 93 pounds. The treatment was continued for one year. Two years after the treatment was discontinued she weighed 96 pounds, the pulse was 78 each minute, and there was no joint trouble. The thyroid was slightly larger than normal. She was in good health.

Case 5. Mr. R. J. C., aged 66 years, who had been a gold prospector, and who had had pneumonia, measles, mumps, chickenpox, pertussis and influenza, and who had had all teeth removed one year previously to cure the existing condition, came under observation on September 5, 1931. He complained of weakness and distress in the stomach. For some years he had been getting less robust and was having difficulty with his stomach. Seven

months previous to consulting me he had begun to feel weak and nauseated. He was troubled with gas formation in the stomach and intestine, accompanied by belching. He could not eat a normal meal as his stomach felt full at all times. The weakness was increased by walking on the level or by ascending stairs. The bowels were regular. The heart pounded at times and he experienced occasional dizziness.

The height was 67 inches, weight 119 pounds, and the blood pressure 140 systolic and 70 diastolic. The pulse was 72 each minute, and the arteries were moderately sclerosed. There was a heavy coating on the tongue, the stomach was dilated, and the cecum palpable.

This patient was placed on the usual treatment. In six months he was entirely well and weighed 140 pounds. Toward the end of three years he weighs the same and is in good health.

Case 6. Miss C. R., aged 7, who had had measles, chickenpox, pertussis, and a tonsillectomy, came under observation because she had always been poorly nourished and lately had begun to have vague pains in the abdomen, and to be constipated. The appetite was poor, she was listless, and complained of frequent headaches. The stomach filled up quickly and after eating she had pains in the epigastrium. She was nauseated at times, and had a great deal of gas in the stomach and bowels. She suffered from a chronic cough and was short of breath on exertion. She was a poor sleeper, was tired in the morning, and irritable at all times.

The height was 47 $\frac{3}{4}$ inches, weight 47 $\frac{3}{4}$ pounds. The pulse was 96 each minute. The teeth showed many cavities, the stomach was dilated, and filled with liquid and gas. She was tender over the cecum, which was enlarged. The ascending colon and sigmoid were also palpable. There were no lung findings. The sputum was negative.

After one year of treatment the bowels were regular, there was no splashing in the stomach, and the cecum was not distended. The weight and general appearance were that of a healthy child. At the end of the third year the patient still continued in excellent health.

All of the patients presented had negative blood Wassermanns and a normal blood count. Urinalyses were done in each case.

ORIGIN OF THE PHENOMENA

The case reports show that the cause of the physical changes may become manifest at any age. The time interval before the changes are marked is extremely variable, but is closely related to the number of gastro-intestinal symptoms of which the individual complains. The relationship to sex which might be inferred from the cases cited is not correct, as the condition is just as frequent in males as females. The cases were taken at random from the files.

The experience of anyone dealing with the types of cases presented demonstrates that the problem is far different from the status produced in animals

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by diets deficient in vitamin B. In animals, if the diet is changed to include the proper amount of the vitamin, the condition is corrected in a period of time. Clinical experience, however, proves that the problem is not solved by the addition of foods containing the vitamin. There is either a brief period of improvement or no improvement at all. This warrants the conclusion that, although the intestinal changes in animals and man are physically the same, they are not produced by a direct mechanism.

The explanation presented by myself is that the phenomena in man are due to two simultaneously operating factors, both depending on the same organism or organisms.¹ The organisms containing the highest amounts of vitamins, particularly B, are yeasts. To subsist, they need vitamins to maintain their own existence in the intestinal tract, especially the stomach, and they thereby rob the patients of the vitamins in the foods. While doing so their metabolic activities produce a large group of toxic chemical substances which lead to changes in the intestinal mucosa. Some of these substances are absorbable, and produce the extra-gastro-intestinal phenomena in man that are not demonstrated by dietary restrictions in animals. The functional activity of yeasts in the small and large bowel is much less than in the stomach, and the action taking place in the latter organ is largely symbiotic with bacteria.

I am quite well aware that many physicians believe that physical change cannot be caused by such absorption. They hold this even in the face of evidence that the same substances can be produced outside of the body by the same organisms, and when administered by mouth, rectally, or intravenously can be absorbed and cause tissue damage. There is no reason, if such substances are produced in the intestinal tract, why they cannot be absorbed in the same manner. The study of sewage proves that toxic substances are formed by organisms habitually found in the intestine. The by-products of yeast action are fairly well known, and the absorbability of many of them is well established. The intestinal tract is a sewage system as well as a nutritive channel.

The intestinal parasites produce these toxic substances when using carbohydrates, proteins, and fats, in the presence of various minerals and water. The foods contain all the requisites for their action, and the temperature of the intestinal tract is optimum. The functions of the organisms found in the intestinal tract decide whether they have importance or not, and the degree of importance. The same capacities explain why one person may have apparently little or no effect from failure of the bowels to move, while another suffers to a more or less marked degree. The principles involved in establishing a diet for patients with gastric and intestinal fermentation, as evidenced by gas formation, comprise the inhibition or prevention of the functional action of the organisms present, combined with mechanical means of keeping the number of organisms as low as possible. This action is often reciprocal. As far as yeasts are concerned, it is not possible to get the tract free of them for at least three years.

The swallowing of air is given as the source of gas in the stomach of many patients. This explana-

tion is applicable in a certain type of case, but in the vast majority of patients consulting doctors, the gas is not swallowed but is produced in the stomach, and of necessity is associated with local and general sensations that are mostly unpleasant. The same applies to the small and large bowel, except for the passage onward of the gas produced in the stomach. There is physiologically a small quantity of gas excreted into the intestinal tract, but this causes no discomfort.

The extra-gastro-intestinal phenomena are the greatest stumbling blocks to the ready acceptance of these cases as classified. The great variation in the picture must be dependent on the inherent chemical composition of the cells. A cell is a chemical compound. A diseased cell is an altered chemical compound. The type of alteration depends on the reacting substances in tissue cells, as well as the extraneous substances brought to the cells through the blood stream. The study of a book like Beutner's *Physical Chemistry and the Processes of Living Matter*² gives a suitable background for understanding this subject. Experience shows that all persons do not react with the production of the same physical phenomena, although they may have individually been subjected to the same chemical influence. This may be visualized in any chemical laboratory by the failure of various substances to react when brought in contact in media suitable for reaction. The cells of the body are different in some particulars in every instance, and the data on which such a conclusion is founded are so numerous that they call for no particular citation. Individual cells in the same organ may differ in their functional capacities, hence their chemical structure is different. This is particularly well illustrated in the study of feathers and hair, both products of epidermal function.

TYPE OF TREATMENT USED

The patients presented were all placed on the same diet, which was devised five years ago for the treatment of fungous lesions. It has been changed very little during the ensuing years. Where patients had idiosyncrasies to certain foods the diet was altered. The diet is constructed so that yeasts find very little sugar, hence gas formation in the stomach ceases in a very short time. The elimination of gas in annoying quantities in the large bowel is more difficult, and requires a much longer time, as this is added to by bacteria of certain types, particularly the *Clostridia* group.

Iodine of some type, usually Lugol's solution, is given to nearly all patients. Iodine has a marked inhibiting action on the fermentative faculty of most yeasts. In these cases the organisms found were saccharomyces, endomycetes, and monilia.

After the patients have been on the diet for some time, and they are having no trouble with gas formation, they are given a cereal product containing a large amount of vitamin B.

When patients with this condition are constipated, they are given some type of magnesia to produce catharsis. In the early part of the treatment practically all are given magnesia, as yeasts

(Concluded on page 398)

Mastoiditis in Infants, with Gastro-Intestinal Symptoms Predominating

• Bernard C. Marantz, M.D., Stamford, Conn.

THIS is a condition which is widely overlooked in proportion to the frequency of its occurrence. While in Vienna and Berlin, in 1927 and 1928, I had occasion to do a considerable amount of postmortem work on the mastoids of infants, and was amazed at the number of surgical mastoids which apparently had not been discovered during their lifetimes. These infants were recorded as having died of gastro-intestinal diseases or from pulmonary involvements; and no mention was made of the aural findings, which, if they had been discovered and treated surgically, perhaps might have been cured. Possibly failure to recognize these mastoid involvements may have been responsible for death in many of these so-called gastro-intestinal, pneumonia or meningitis cases. This was no less of a surprise to the Dozent with whom I worked and he could not explain these findings other than to call them part of a general manifestation of disease, involving the gastro-intestinal tract and extending to the linings of the respiratory tract, throat, middle ear and mastoids.

I searched the literature in Vienna in vain for light upon this subject. It was not mentioned in the didactic course on the pathology of the middle ear and mastoids of infants.

In Berlin I was equally unsuccessful for the reason that very few infants with this type of mastoid involvement were admitted into the hospital; and those who came for admission were received into the pediatric wards and died there, diagnosed as gastro-intestinal and nutrition cases.

I was much impressed by the size of the mastoids in infants of 6, 18, and 22 months. These were out of proportion, as compared with the text-book descriptions which refer to the infant mastoids as being composed of: "one large cell, the antrum—the tympanic cavity, aditus and antrum being filled with embryonic tissue which is gradually absorbed." This is true in the very young infants of 3 to 6 months, but when one operates on older infants the size and development of the mastoids vary considerably. This point has some bearing on the operative procedure necessary, which is different from that frequently advised, as I shall indicate later.

The mastoids of the older infants were fairly well developed, consisting of numerous cells, some of which were destroyed, while the remaining cavity was filled with pus. The characteristic feature of these was that the cortex was intact in many cases, and the soft tissues overlying the mastoid did not in the least suggest any disease process within.

On returning to this country, I found this subject

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amply discussed in the splendid work done by Alden, Richards, Lyman, Floyd, Marriott, Dean and others. James B. Costen reports only two cases in his series.

It is sometimes amazing to realize how vague the physical findings in the ears and mastoids of these infants are, in comparison to the advanced pathologic process present, as observed on the operating table. Unless one examines the ears routinely on admission, it is very easy to overlook the types I am describing.

In a series of eleven cases which I have had occasion to observe at the Cumberland Hospital of Brooklyn, six of which were operated on by me, the cortex was perforated in two infants of eight and thirteen months of age, while externally there was no sign of mastoiditis. Some middle ear symptoms together with the gastro-intestinal condition were present.

I want to emphasize the fact that a simple antrotomy, as advocated by some otologists, is not sufficient. Owing to the fair size and development of the mastoids of these older infants, a complete exenteration of all the cells is necessary in order to achieve results. In very small infants under six months of age, of which we had four, in whom the mastoids were not developed, a regular mastoid incision was made under local anesthesia. I used $\frac{1}{2}\%$ novocain, which was injected under the skin and periosteum, the antrum being widely exposed. Local anesthesia was used on one older infant of 16 months in whom we thought it advisable, owing to his very poor condition.

I desire to state that in these older infants quite a large cavity remained after the complete exenteration of all the discoverable mastoid cells..

SYMPTOMS

These infants usually were admitted to the children's ward with gastro-intestinal symptoms such as diarrhea, vomiting, loss of weight, and prostration, and some of them were markedly dehydrated and very pale. Their temperatures ranged between 101 to 103 and a few registered 104. These infants appeared quite toxic when admitted to the hospital.

There is nothing to suggest an ear involvement in such cases, unless the ears are examined. Occasionally an infant will present a slight discharge from the ears. Upon examining these ears one may find a blushing drum, or a greyish drum, or an extremely hyperemic drum, the landmarks of which may or may not be present. Some of the drums were bulging; some had perforated and were discharging scantily a thick purulent or muco-purulent discharge. There was no sagging of the superior posterior portion and no narrowing of the canal.

In some instances the canals were not very roomy. Attention is very easily diverted from the ears by reason of the other physical symptoms, hence the need for a careful examination of the ears of sick infants.

Cultures taken from these cases showed the *Streptococcus hemolyticus*, *Staphylococcus aureus*, and *Pneumococcus*. Cultures were not made in all the cases.

The blood examination revealed nothing significant. The white cell counts were somewhat elevated. In four cases the leucocytes were about 15,000. The red cell count showed nothing of interest and the hemoglobin was low in most cases.

X-ray pictures in these cases were of little value, particularly among the very young infants. Among the older infants one occasionally notes some cloudiness over the mastoid region.

Operative findings: In most of the infants operated on I found an extensive necrosis of the mastoid cells, which were fairly numerous in the older infants. As stated above, after operation quite a good sized cavity remained. Some cells were intact and contained a thick pus or muco-purulent secretion. In the two infants in whom we found cortex perforations, the latter were unilateral, two on each cortex, each about the size of a small pea and separated from each other by about one-quarter of an inch. This bone necrosis existed contrary to the findings reported by McMahon and others. There was no swelling or edema of the soft tissues behind the ears. All cases were bilateral, some requiring operation of the other mastoid a short time after the first mastoideectomy.

Pathology: In all instances a thickened and edematous mucous membrane lined the mastoid cells, with pus in the antrum and mastoid cavity. There was a marked infiltration by polymorphonuclear cells, erythrocytes, and connective tissue cells. Most of the mastoid cells were destroyed.

TREATMENT

All the infants after admission were treated jointly by the pediatrician and the otologist. They were all placed upon the proper diet, received saline solution intraperitoneally, and a transfusion was given to the extremely toxic infants pre- and post-operatively. Dextrose was also given intravenously.

Out of the series which I observed eight recovered and three died—one of prostration, one of pneumonia, and one of meningitis. The three who died were admitted late in the course of the disease and were extremely toxic. Experience has taught me not to operate on the extremely toxic infant with mastoiditis under these conditions.

I shall not cite each case individually, as primarily I wish to emphasize the need of a prompt and early admission of these infants to the hospital; the importance of having an otological examination routinely in all infants with gastro-intestinal disease; and above all, the imperative necessity of operating upon these infants before they become too toxic to resist and overcome the surgical shock.

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Studies in Diabetes

(Concluded from page 378)

Infections and fevers may likewise throw too much strain upon a hereditarily weak sugar machine and cause glycosuria. So that there is no doubt that heredity must be considered as a very fundamental factor in all cases of diabetes.

And last of all it is necessary to consider that "mooted question," does fat change to glucose and thus become a cause of diabetes, as claimed in the overproduction theory. In a recent article I have made an intensive study of the metabolism of a single depancreatized dog which lived 18 days, and was fed exclusively upon protein and fat, eating all of his food at every meal without vomiting. The glucose passing through metabolism could only have been derived from the deaminized proteins, the glycerol fraction of fat, or, according to the over-production theory, from body fat. The figures showed that the glucose from deaminized protein, plus the 10% glycerol fraction, plus the glucose excreted in the urine, exactly equalled the amount possible from the food. And from estimates of the theoretical metabolic requirements of this dog, made from actual facts observed, it was clearly shown that glycogen in amounts from 20 to 30 gms. daily was deposited the last ten days of the experimental period. As the deposition of glycogen, according to established principles, requires exactly opposite conditions (with R. Q.'s higher than 0.70) from those determining the conversion of fat into glucose (with R. Q.'s less than 0.70), it is evident that no fat was converted to glucose in this severely diabetic dog. It accordingly seems necessary to discard this theory of the overproduction of glucose from fat as a cause of diabetes; and now with the decks cleared of the debris of these false theories of the last ten years, we may hope to make some progress both in our understanding of the disease itself and in some additional methods of treatment which are even now being tried out.

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Where?

"Dad," said the small boy, looking up from his book, "where is Atoms?"

"You mean 'What are atoms?'" said his father.

"There's no place called Atoms."

"No, I mean a place."

"You must be thinking of Athens."

"No," the small boy insisted. "I mean Atoms—the place where the things get blown to."—Vancouver Province.

Focal Infection

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THE term "Focal Infection" in medical parlance means a chronic, usually feeble or low grade infection in one part of the body which develops insidiously and progresses slowly, while producing morbidity in some other part of the body separate and apart from the infected area. In this manner it presents symptoms of local and systemic diseases. The focus of infection may be within the somatic tissues of the body, or it may be enclosed within some viscous or cavity of the body. Focal infection is a very common cause of chronic ill health, sometimes as the primary etiology, but more often it acts as a contributory factor in disease conditions primarily due to other causes. The foci may be single or multiple and may vary much in size. The infective or toxic activity of each may be constant, but is more often intermittent in character. The focus or foci causing the infection may be primary, secondary, or metastatic.

stances, definite foci have been discovered from which these infections originated.

The teeth, tonsils, the various sinuses, bronchial mucosa, kidney, uterus and adnexa, prostate, gall-bladder, appendix, colon and finally the rectum may each and all, singly or in combinations, contain definite primary or metastatic infective processes the absorption of whose products may be responsible for many symptoms heretofore treated empirically. The symptoms of disturbed intestinal function, such as indigestion and "autointoxication", have been too long treated by the administration of cathartics and enemas and the modification of the patient's diet, or the presence of pain in the rectum together with bleeding or other discharge from the anus been dismissed with a prescription for salves or suppositories. All of these procedures fail completely or afford but transitory amelioration. Neuralgia, rheumatoid pains, dizziness, nausea, headache, blurring of the eyes, fatigue syndrome, constipation, hali-tosis, loss of appetite, abdominal distress, recurrent herpes, unexplained rises of temperature, pruritus, eczema and disturbed sleep are frequently due to focal infection.

Though the individual may successfully, for a time, combat the effects of the focal infection, its continuously distributed toxins lower his resistance and when some secondary infection invades it may terminate fatally. Thus spondylitis, osteomyelitis, pyonephritis and pulmonary abscess may develop from colonic or rectal disease which has been overlooked as the possible focus of infection.

"Autointoxication" is quite generally recognized as evidence of a disordered intestinal canal, and under proper therapy many cases respond to treatment. However, it is not universally appreciated that the sigmoid, rectum, and anus are fertile sources of focal infection.

While many sufferers recover promptly, almost miraculously, after the removal of a septic pocket, the clinician sometimes notes with disappointment that following the removal of a focus or foci of infection the results show little or no improvement in the health of the patient. Occasionally his disability has been increased, or new and more severe symptoms, the direct result of the operation, have developed, for example, lung abscess. One naturally asks oneself: Why should so many patients fail to respond more favorably to this rational form of therapy? It would appear that the chief reasons for lack of improvement in these patients are: (1) an inadequate appreciation of the causal relationship of focal infections to various chronic conditions; (2) an incomplete diagnosis, and, therefore, an incomplete plan of treatment for the individual patient; (3) a lack of proper cooperation in both diagnosis and treatment between the physician in charge of the patient and the consultant or dentist who removes the foci; (4) an inadequate follow-up of the patient while under treatment.

A large percentage of the patients suffering with rectal disease of a subacute or chronic character give a history of earlier treatment for the removal of foci of infection. Here is an example from our own files. Mr. A. T. H., age 60, a house painter, suffered with acute articular rheumatism in 1906, had his tonsils removed in 1907, in 1922 he had an acutely inflamed gangrenous appendix removed, in 1924 he had pneumonia, in 1925 he had several hemorrhoids removed, and at this writing is under our care for colitis with gall-bladder complications. In many instances where less severe rectal disturbances are noticed self-treatment is instituted, although when definite local symptoms develop, as in the above mentioned patient, a physician is consulted. Unfortunately, even in the hands of a medical man, many of these symptoms are spoken of as biliousness, indigestion, dyspepsia, rheumatism, neuritis, arthritis, autointoxication or reflex pains and then these symptoms are treated empirically with sedatives, analgesics, massage, various types of heliotherapy, electrotherapy and other modalities of physical therapy. These cases of so-called muscular rheumatism, sciatica, lumbago, various neuralgias, and asthma are merely manifestations of infection located in regions more or less remote from the point at which these symptoms are evidenced, and it is these incomplete or mistaken diagnoses by which secondary conditions are wrongly accused of being the primary causal factors and unnecessary medication or unprofitable surgical operations directed toward these supposed factors. Since we have learned that many symptoms, general in character, are due to infections originating in parts of the body lined with mucous membrane and usually remote from the regions in which the symptoms are manifested, many of these tissues and organs and cavities have been examined, and, in many in-

It is unnecessary to refer to the evidence upon which the principle of focal infection is based, if the frequency with which the removal of foci of infection is recommended by the profession may be taken as proof of the recognition of the importance of focal infection as a cause of disease. However, the manner in which foci of infection in the terminal bowel may affect the body locally or generally is not so universally appreciated.

Following an injury, bacteria invade the traumatised area, where they may or may not produce local symptoms, depending upon the severity of the inflammatory reaction.

If definite local symptoms develop, the patient may consult his physician or may institute self-treatment. The diagnosis is comparatively easy and, provided the focus can be removed or drained properly, the local symptoms are relieved and, if treated early, the damage to distant parts of the body repaired or prevented from developing. Unfortunately, local symptoms are often absent; the bacteria continue to multiply, producing toxins which are absorbed, causing systemic disease by intoxication.

In a restricted meaning focal infection implies the production of a toxin in the infected foci, which toxin is carried by the blood and the lymph to the region made morbid by it, or to the nerve centers controlling these tissues and, by its effect on these nerve centers, causes the morbid condition through the action of these centers, which are separate and apart from the tissues made morbid by such infections.

In other instances the primary focus is merely a nesting place from which the bacteria are picked up by the blood or lymph and transplanted to other locations in distant parts of the body, where they form secondary or metastatic foci of infection, before the patient consults his physician. Because these secondary infections have a special affinity for diseased tissue, it is more apt to attack diseased areas. The bacteria found about many diseased areas may be accounted for in this way when they were not present at the onset of the morbidity.

Metastatic foci may be found in any part of the body, but are most commonly present in the joints, the endocardium, gall-bladder and kidneys, less often in mucous membranes of the lower respiratory and gastrointestinal tracts, muscles and tendons, eye and ear. Local symptoms are more commonly present and more severe with metastatic foci. The character of the symptoms upon which the diagnosis of metastatic infection depends is determined by the location of the lesion and by the activity of the primary focus responsible for the lesion. The injured part may recover from the first infection with or without the removal of the primary focus, but after repeated reinfection, structural changes occur which result in permanent disturbances of function and, unless the area can be removed by operation, complete amelioration of the local symptoms is impossible. If these few essential points referring to the development of focal infection from primary and metastatic foci are borne in mind, it will be less difficult to understand the lack of uniformity in the results of treatment following the removal of foci of infections in patients suffering

from apparently similar clinical conditions. One can thus appreciate more fully the importance of a complete diagnosis before recommending a plan of treatment. In the search for foci of infection as a cause of local disturbances of function or of general ill health, it is not sufficient to confine one's efforts in diagnosis to their detection within the sigmoid, rectum and anus, but one must determine whether such foci as are found are causing the systemic disturbances; that is, are they the primary cause of the disability? Perhaps more commonly the active foci are secondary etiological factors affecting the progress of a disease condition due to another cause. For example, our patient may have inflamed anal crypts which discharge free pus but the cryptitis is but part of the proctitis higher up. If the focus of infection wherever found is the primary cause of the disability, its removal will prevent the possible future development of systemic disease from the area in the pelvic bowel. If focal infection is the primary cause of ill health, and all foci of infection have been found and can be eradicated, we may expect that our patient's health will improve, and a cure or a marked amelioration of symptoms will result. If the infection in the rectum is but a contributing cause, the treatment of such a focus is necessary but must be considered as supplementary to the recognized treatment of the cause of the primary condition. For example, Mrs. G. Y., age 35, had a baby ten years ago. The delivery was difficult and there resulted a very deep cervical laceration and also a rent in the perineal body. The immediate repair was not very successful but she did not have anything further done. A short while ago she suffered a heavy, full feeling in the rectum at all times and recently had been much disturbed because of a burning pain at the anus and bleeding after each bowel movement. Examination disclosed a gray fissure at the anus which bled even after careful examination. The sphincters were spastic and tender. The rectal mucosa was engorged. Vaginally, the uterine cervix was very large and covered with granulations. This large, eroded mass resembled a carcinoma. The primary infection here was in the cervical ectropion, which caused the proctitis as a secondary lesion, the anal fissure being but incidental. To merely remove the fissure and relax the sphincters was to obtain only temporary if any relief; the cervical condition was the primary lesion. This differentiation may appear too obvious to mention, but one sees too frequently patients suffering from a mild exacerbation of hemorrhoids or fissure, in whom foci of definite infection exist elsewhere and thus the primary cause of ill health has been overlooked.

BACTERIA: The bacteria usually found in focal infections are the streptococcus and the pneumococcus, and the less virulent strains of these, but other bacteria may be found. Many genital disturbances in the female are due to colon bacillus infection. No one strain of bacteria has been found

constant in all cases of focal infection, although the *Streptococcus viridans* seems to be more nearly constant than any others. It may be that one kind of bacteria, as the tubercle bacillus, starts the focus of inflammation and some other kind, as the *Streptococcus viridans*, enters the focus secondarily, where it forms the toxins which are transmitted from the focus; or more than one kind of bacteria may be working in the same focus, all producing toxins at the same time.

TOXINS: The protein molecules of the body are made up of eighteen kinds of building stones, known as amino-acids, each protein having its own combination of amino-acids. Each amino-acid contains one or more carboxyl radicals, COOH, or carbon dioxide with a hydrogen atom attached. Whenever there is dead tissue in the rectum or anus in the form of a gangrenous hemorrhoid, debris in an anal crypt, or exuded serum and fibrin in a diseased mucosa or submucosa, this dead tissue may become infected with bacteria, which bacteria separate the carbon dioxide from the hydrogen atom of the carboxyl radical, changing the amino-acid into an amine. The amino-acid is a necessary unit of food for the body but the amine is not only, in most cases, abnormal to the body tissues, but, in excess doses, it is usually toxic. Amines vary in their physiological action toward the body and also in their solubility, some being more soluble in water and others being more soluble in oils. Absorption and transmission of these amines in the body may vary with their solubility in the adjacent body fluids. So the kinds of amines absorbed and passed into the body vary first with the amino-acids converted into amines and then with the solubility of the amines in the adjacent body fluids. The amines, being absorbed from any focus of infection, pass into the lymph or blood, by which they are transmitted and brought into contact with some distant tissue, or the nerves supplying such tissue, which they damage by their toxic effect, producing the morbid condition recognized as disease.

TREATMENT: As far as the colon is concerned, constipation should be studied because it is from this focus that many of the worst chronic cases are fed. Colonic irrigations here are better than the use of cathartics.

Next to the removal of infection comes diet. With our knowledge of amines derived from protein foods it would seem that all proteins should be eliminated from the diet; but this is not true. Proteins should be reduced to the point where there is little residue left unabsorbed to pass into the colon. Proteins which are digested and absorbed are less liable to do harm. It is only the residue which passes into the colon which is attacked by bacteria to form toxic amines. For this reason the diet may sometimes require limiting in proteins. Many times we find that the carbohydrates are more harmful than the proteins, as shown by Pemberton. An important point is to limit the calories. Persons suffering from the damage of amines should live as nearly as possible on fruits and vegetables.

The exclusion of focal infection as a possible cause of chronic disease is a difficult problem. Often data obtained from the clinical history and the routine physical and laboratory examinations

suggest focal infection as a likely cause of the patient's symptoms, but disease in likely sites appears to be absent. This may be because by the time the patient consults his physician the evidences of such a focal infection are seldom obvious. In the case of a patient with a prolapsed ulcerated hemorrhoid it is not simply a question of the advisability of removing the pile. A more important question is the possibility of the coexistence of systemic disease or metastatic infection, by lymph or blood diffusion, and whether or not another disease condition contributory to the patient's illness is present. Thus the same therapeutic measure may be chiefly preventive in one case and equally curative in another. The proctologist treating focal infection should caution his patient as to the possible existence of systemic disease and refer him to his family physician for further observation. If systemic disease is suspected, he should refer the patient to his physician before attempting operative treatment, as systemic conditions may be aggravated by the too early removal of foci. Both family physician and specialist should insist that the patient return periodically after the operation for observation of the effect of the treatment. Complications requiring prompt attention may develop after operation, or symptoms suggesting activity of latent metastatic foci may appear, or the presence of another disease condition overlooked in the first examination may become manifest. An incomplete recovery is an indication for reinvestigation of the case.

Family physicians should examine their patients periodically for early signs of focal infection. The treatment of patients should be based on the results of an accurate and complete diagnosis, remembering always that it is the patient with focal infection that requires the treatment and not the focal infection alone. Even though focal infection is the only cause found for the patient's ill health, more than local treatment is required. The general condition of the patient must be considered and appropriate measures prescribed to aid in making the recovery as complete as possible. As an aid in the recovery from existing infection and the prevention of later infection, attention must be given to the correction or prevention of such factors as unbalanced-diet, extreme fatigue, or exposure to cold or trauma, which lower body resistance and predispose it to later infections of all kinds. Many physicians do not seem to understand the necessity of making periodic physical examinations of all members of the families under their care, children and adults alike. Nobody doubts the wisdom of seeing the family dentist regularly. If it is admitted, and it is, that the teeth should be examined at regular intervals, how much more is it necessary to have the whole body, including the colon, examined regularly to find out if any morbidity has already started in any part of it. The tongue, the bronchial mucosa and the skin usually give evidence of systemic intoxication before the joints, the heart, and the kidneys show signs of secondary infection. The teeth and the tonsils are frequent sources of focal infection and are routinely examined, whereas the colon, almost as frequently a cesspool, is overlooked.

Let us study a few of these interesting cases.

Mrs. A. C., age 47 years, height 5 feet 8 inches, weight 125 lbs. For the past four years she has had an itching about the anus and for about the same length of time has had a vaginal discharge. She has consulted several physicians but has obtained only temporary relief. Ever since girlhood she has had abdominal distress. At the age of 30 she had her appendix and ovaries removed. Later she had hemorrhoids removed, an anal fissure cauterized and recently has been treated for "catarrh of the womb." She has always had a lot of "nervous trouble" and "rheumatism"; has had many headaches but sleeps well.

Examination—A nervous, voluble, wrinkled, frail woman, apparent age 60 years. Artificial menopause at the age of 30 years.

Cardiovascular system—No cough or expectoration, blood pressure 102/68, no edema; the blood shows:

Hemoglobin	85%
Erythrocytes	4,680,000
Leucocytes	11,000
Small lymphocytes	40
Neutrophiles	52

Gastro-intestinal—Appetite good, bowels fair, takes a laxative occasionally, no nausea or vomiting, lower mid-line abdominal scar, soreness along descending colon but no distention. Tonsils enlarged, anterior pillars are injected. Teeth well kept but have many fillings and several teeth are lost.

Perineum—External labia small, urethral orifice engorged, vagina contains some yellow pus, a smear and a culture of which showed colon bacillus almost solely.

Anal orifice is small, sphincter contracted, rugae deep, perianal skin is blanched and white. Anal papillae are sensitive but not hypertrophied. Rectal mucosa is engorged; rectal ampulla contains much soft feces.

Diagnosis—Summarizing our findings it appears we have here a proctitis, with deeper infection in the anal crypts, colon bacillus infection of the vagina, the seeping vaginal and rectal discharge causing the perianal dermatitis, in an individual suffering with pluriglandular deficiency (hypoadrenia).

Treatment—1. An autogenous vaccine was made from a vaginal smear and subcutaneous injections were given every three days. Our dose being 1/minim at the first day and increasing a minim or two at each dose until 15 minims were given at a dose and this dose then continued.

2. The rectal and vaginal catarrh was treated by cleansing the mucosa and applying argyrol to the abraded surfaces.

3. The endocrines were stimulated by organotherapy and adding an abundance of vitamins A and B to her diet.

These cases are slow to respond and we must not be too energetic in our therapy. It is usually well to interrupt medication a few days each fortnight and turn our energies toward building up the resistance by studying the diet.

Case No. 2. Here is another patient presenting similar complaints but with a very different etiology. Mr. L. F., age 24 years, height 5 feet 8 inches, weight 185 lbs. For the past two years he has suffered with itching about the anus, the suffering being definitely worse at night when he is in bed. He has used various ointments with only temporary relief. Bowels move nearly every day; no blood or mucus in the stool. He has always enjoyed good health. His occupation, that of a technician in a laboratory, is sedentary.

Examination—A well developed and over-nourished young man. His teeth are well kept but in poor condition. Tongue coated and tooth-marked. His appetite is good although he has some belching after eating. Abdomen is soft; no tenderness or masses palpable. Anus is fissured in the posterior commissure, the perianal skin is blanched and edematous, no hemorrhoids, prostate is normal, rectum empty of feces but contains considerable mucus.

Here is a young, robust individual with a sluggish colon and with a chronic low grade "auto intoxication," or an allergy, and a poor elimination. We must cut down his diet and limit his calories. He was urged to drink water freely, 2 glasses upon arising, 2 glasses at 10 o'clock in the morning and 2 glasses during the mid-afternoon, to eat fruit with every meal, and vegetables with his noon and evening meals, and to limit his protein intake; and to take a three-mile walk in the open air each day. His over-worked bowels cannot keep pace with his palate. These patients usually begin treatment very enthusiastically but shortly fall by the wayside and thereafter continue to alternate between periods of dietetic regimen and others of skin irritation, sometimes local and at other times widespread.

Case No. 3. Our next patient, Miss M. F., age 25 years, single, office employee, was referred to us because of a heavy feeling in the rectum and persistent derangement of defecation. No natural defecations are obtained. Enemas have been used mostly because cathartics cause gripping abdominal pains, borborygmus and watery stools followed by constipation.

Examination—A frail, sallow-complexioned girl, tongue coated and tooth-marked, chest negative, blood pressure S.115-D.70, blood count 5,280,000 red and 7,400 white. There is nothing in her blood picture to account for her lassitude. Her abdomen was soft, not distended, but there was a tenderness all along her colon. Several years ago she had had her tonsils removed but she occasionally had recurrences of sore throat, the last being but a short time before she came to see us. The anus was normal in appearance, sphincter spastic, rectum filled with feces; after the rectum was emptied the mucosa was found pale in color but otherwise normal; no pelvic disease otherwise was found.

Here is a case of vagotonia with rectal constipation, and the symptoms of general physical debility rather than of local disease. The remnant of a diseased tonsil was removed because it was a focus of infection contributing to her general exhaustion. She was then put to bed upon a diet with low residue and the rectum emptied each day with

(Concluded on page 402)

Cancer

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The Clinical Conference On Cancer

Held at the Strong Memorial Hospital, Rochester, N. Y., at the Ninth Annual Meeting of the New York State Committee of the American Society for the Control of Cancer

The Present Status of the Cancer Problem As Observed in the Rochester Hospitals

7. CANCER OF THE PROSTATE

By FREDERICK J. GARLICK, M. D.

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MY summary of carcinoma of the prostate cases includes the material from the General Hospital, St. Mary's Hospital, and the Park Avenue Hospital.

The cases in 1927 in the three hospitals were thirteen. The average age of the patients was sixty-five years. All cases had urinary obstructive signs except one. The duration of the symptoms averaged two years and the diagnosis of cancer of the prostate was made in each case before operative procedure. Eight of the thirteen cases were considered late cases and five early. As to the treatment used in the thirteen cases: no operation was advised in four because the cancer was considered too extensive. In five cases a two stage prostatectomy was done. In one case a cystostomy with suprapubic drainage. In one case a punch operation and in one a partial prostatectomy followed by radium implantation. Two of the thirteen cases or 16 percent showed metastasis.

Results: Two are living six years after operation; one at the present time showing metastasis. Nine of the cases are dead and the result in the remaining two is unknown.

In 1932 there were nine cases of carcinoma of the prostate. The average age was sixty-eight years. All except one had urinary obstructive symptoms. Average duration of symptoms one and one-third years. Seven cases were considered late and two early. Treatment: Four had two stage prostatectomy, two had the punch operation, one was treated with deep Röntgen irradiation and no treatment was given in two cases. Metastasis was present in three cases or 33 percent.

Results: Six of the nine cases are living, but two show metastasis. One died of endocarditis. One died from old age with a fractured femur aged eighty-five years. One died of infection following operation.

In comparing the thirteen cases of 1927 with the nine of 1932 little is to be gained because most of the cases of carcinoma of the prostate are fairly well advanced before they are discovered and, what is more, even before they give any obstructive urinary symptoms. It is a well-known fact that the prostate may be very small and still be carcinomatous with metastasis to the skeletal system. Again the difficulty in recognizing carcinoma of the prostate is probably due to the secluded spot in which the prostate is found in our anatomy.

McCarthy states that to envisage adequately malignancy of an especial part of the body necessitates primarily a consideration of etiology, growth character-

istics, cellular classification of the disease as an entity, its role as an insidious invader and finally the set-up of our defensive mechanism of prevention, eradication, or alleviation.

The diagnosis of carcinoma of the prostate must, in a large measure, rest with the internist or the general practitioner, for it is he who first sees these cases. Prostatic palpation should be, but all too frequently is not, a routine step in a physical examination. The classical signs of malignancy of the prostate are nodulation, induration, and fixation. Naturally these findings are just a part of the regular personal, family history and general physical study, supplemented in suspected cases by x-ray and cystoscopic studies.

As a prophylactic step all infections of the prostate should be removed as in many cases of true hypertrophy of the prostate there is tell-tale evidence of pre-existing acute or chronic inflammatory disease. As Ewing points out, these low-grade congestions and inflammations are the chief predisposing conditions in 10 percent of the cases of cancer. Eighty-five to ninety percent of prostatic cancers may be readily detected by the examining finger. All early prostatic obstructions should be corrected as 10 percent of prostatic hypertrophies degenerate into cancer.

However, once the diagnosis of cancer of the prostate is made the patient is usually doomed, no matter what sort of treatment is instituted. It has been stated that whatever one does for a patient with a prostatic cancer one does the wrong thing. This statement voices in a way the difficulties in treatment.

Operation in these cases, such as prostatectomy, probably only stimulates the growth and we know that it is impossible to remove all the gland. Radical perineal removal in some early cases may be justified. Radium in the hands of a few seems to give good results while, at present, prostatic resection followed by radium implantation and probably deep Röntgen irradiation seems to be the most popular method of treatment. Barringer, of the Memorial Hospital, New York, states that at present we are only at the threshold of knowledge, both as to cause and control of cancer of the prostate. We must insist on regular examination of the prostate in all males past the age of sixty and we must keep our minds open to new suggestions, new leads, change one thing here and try another there. If we progress, the seemingly hopeless case of today may be the promising one of tomorrow.

Economics

Department Editor: THOMAS A. McGOLDRICK, M.D.

CHAIRMAN COMMITTEE ON ECONOMICS OF THE MEDICAL SOCIETY OF THE COUNTY OF KINGS, BROOKLYN

Social Programs Involving Medicine

WITH the approaching new sessions of Congress and State Legislatures the proposers of new laws are working strenuously over their measures and the ways to secure their adoptions. Not only are the bills submitted to experienced legislators for strategic advice, but every aid and influence, open or concealed, that might help, are sought and used. Political deals, full-time and fully paid lobbyists and propagandists, inspired articles and editorials in newspapers and magazines and advertising by press and radio are frequently used parts of the campaign. The economics of sickness, either alone or combined with measures for old age relief, unemployment problems and workmen's compensation acts, will be the subject of many bills. Supporting these bills will be found organizations of much political or social or financial strength. The American Association for Social Security, the Association for Labor Legislation, Leagues for the Socialization of Medicine, The President's Economic Security Commission, the Committee on the Costs of Medical Care and many of the Foundations have already assisted or are preparing to assist in the preparation and passage of bills affecting medical care of the sick.

In the bills proposed by these agencies there is one premise upon which all seem to agree—the insufficient quantity of care given the families in the low-income class. When one seeks the meaning or limits in "low-income class" he finds the agreement not unanimous. Health insurance to one group would mean and include all those receiving less than \$3,000 a year, but it would exclude all those receiving nothing, as these would be unable to pay for insurance. Other groups insist that compulsory health insurance should include all those receiving less than \$5,000 a year, lest the premium paid by a smaller number of wage earners would not suffice for the successful administration of the law. The proposals of socialism and plans for State medicine would provide care for *all the people*. All these groups stress the subject of the *quantity* of medical service—the *quality* of it is ignored. Perhaps they think it is not necessary to consider quality. Perhaps they feel that any medical service is better than none at all. Knowing the high quality of medical care in this country, the continuous remarkable progress in medical science and its early application to the people, the standards of our medical schools and the ability of their well equipped yearly graduates, these groups know in their hearts and rely on the fact that no matter what the financial condition of the patient the only quality of service a doctor will render is the best in his possession.

Another premise common to these proposed laws and plans is that the remuneration of the physician is not made definite. The amount of premiums to be paid by insured individuals, by families, by employers, by industries, or contributed by the State shall be fixed. The salaries of Administrators, of Commissioners, of subordinate officers—even of clerical help—may be incorporated in the

law but not that of the men and women doing the real work. One "model" law to be introduced these coming sessions gives its commission the right to make donations of the collected monies or premiums to institutions for scientific research, to allot contributions to general or special hospitals and to allow sums to such public health work as sanitation—donations and contributions which have been taken from monies collected from the low and lowest income classes. From the funds that remain after these, and all other expenditures, the doctors would be paid through some undecided way. The question arises whether young men who seem most desirable as medical students and doctors, when they discover exactly how much remuneration would be given for full time work and real ability under these varying plans, would not be diverted into other lines of livelihood. There are very few men, it is true, who enter medicine purely as a money-making business. The investment of so much money, ability and the years of hard work required in medical preparation would bring greater monetary return in many other lines. If, however, a young man sees the prospect of a life with income near the level of subsistence, with uncertainty of ability to support or educate his family or provide for his advancing years, with a classification of himself by many sociologists among the under privileged, with probable dependency on State aid or private philanthropy, will he courageously rush into medicine? Will not medicine and the public be deprived of valuable doctors? Many earnest students of these questions now recognize this as more than a probability. They are emphasizing, for the medical worker, income "adequate and assured." Suggested maximum figures of \$1,900 or \$2,500 or \$2,700 a year are less vociferously proclaimed. But the terms are still indefinite. Only one group—The Milbank Foundation—has actually stated through its representatives its idea of income in dollars. It is of interest to note that while many of these social workers are engaged in reducing the costs of medical service and consequently keeping low the doctor's income, they on the other hand are wholeheartedly supporting the Government's plans to increase the price of all other commodities and in this way the cost of the doctor's living.

Not many years ago the voice of the physician was not heard on economic questions. It was supposedly beneath the dignity of his profession publicly to discuss money matters or his financial relations with the sick either as individuals or the public. The public need and the activities of non-professional groups along lines that would be harmful to the sick have changed those views. Already years of study have been given by doctors to these economic questions. Organized medicine through its County Societies, through State and national bodies, from its studies and its experience is now qualified to assist intelligently in the preparation and the administration of

(Concluded on page 397)

Contemporary Progress

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Neurology

Encephalitis in Children Apparently Congenital

W. B. Stewart (*American Journal of Medical Sciences*, 188:522-528, Oct. 1934) reports 7 cases diagnosed as encephalitis in children in whom symptoms had been present since birth. These children gave no history of an acute illness which might have been diagnosed as epidemic encephalitis; and the onset of symptoms did not coincide with the occurrence of any of the acute infective diseases of childhood. In all these cases, however, the mother had influenza during the later months of pregnancy; in no case did the mother have any symptoms of acute epidemic encephalitis or develop any encephalitic sequelae. Five of the children show symptoms of organic involvement of the extrapyramidal system characteristic of encephalitic sequelae; in 4 these symptoms are of the parkinsonian type; and the fifth patient shows choreiform tremors increasing in severity. In the sixth case there is a history of lethargy first noticed at birth, and the patient shows a reverse Argyll-Robertson pupil—a common sequel of epidemic encephalitis—and a characteristic behavior disorder. In the seventh case, the physical findings are negative, but the child shows a typical postencephalitic behavior disorder. Of the seven patients, one is an imbecile and the others all show behavior disorders. The majority of these cases, therefore, show both organic signs characteristic of the sequelae of epidemic encephalitis and the typical behavior disorder. They appear to be congenital and to follow maternal influenza. The possibility of a relationship between influenza and epidemic encephalitis has been indicated by clinical evidence; the cases cited appear to give further support to this theory. The author suggests that it is advisable to investigate the prenatal history of children showing signs of chronic encephalitis without a history of an acute attack; and also to study the central nervous system in cases where fetal death occurs as a result of maternal influenza.

COMMENT

This paper is very informing. The transmission of infection from the maternal host to the fetus seems to be well established, insofar as diseases affect the central nervous system. The reviewer feels that Dr. Stewart has proven his point nicely. I have on several occasions observed a similar phenomenon in children where there has been no adequate postnatal history to explain the development of symptoms. Along the same lines Collier of England has advanced a very tenable hypothesis to explain the occurrence of cerebral diplegias on an infectious or inflammatory basis. Illness in a pregnant mother can not be dismissed lightly in the future.

H. R. M.

Facial and Meningeal Angiomatosis With Calcification of the Brain Cortex

K. H. Krabbe of Copenhagen (*Archives of Neurology and Psychiatry*, 32:737-755, Oct. 1934) reports 5 cases showing a combination of epileptic fits and angiomas of the face; these patients also showed definite retardation of mental development, and in some instances a slight spastic

hemiplegia on the side opposite to the facial angioma. Roentgenological examination in these cases showed a characteristic sinuous shadow presenting exactly the shape of the surface of the brain, showing both gyri and sulci, usually localized in the occipital lobe. One of these cases was shown before the Radiological Society of Copenhagen in 1921, but was never previously published. In one case that came to autopsy, histological examination of the brain showed that the roentgenological shadow was produced by calcification of the outer layers of the cortex. The pia mater showed abundant vascularization in some areas, but not a true angioma. The calcification consisted of numerous small (usually microscopic) granules of lime salts in the second and third layers of the cortex. In these layers the nerve tissue was almost entirely destroyed and replaced by fibrillar neuroglia. The occipital lobe, where the processes were localized, was sclerotic and shrunken. The author is convinced from his study of these cases that the changes in the brain are not secondary to angiomas of the pia mater, but that the syndrome represents a more generalized malformation of the organism, probably fetal in origin, resulting in the formation of angiomas of the face, angiomatic changes in the pia mater, aplasia of the occipital lobe of the brain; the sclerotic changes and calcification are probably secondary to the aplasia. Operation is not indicated in cases of this type, since the cerebral calcification is not related to tumor, but to a congenital defect; regeneration of aplastic brain tissue is impossible. The only possible form of treatment is symptomatic treatment for the epileptic fits and mental hygienic treatment for the mental defects.

COMMENT

Since Lindau's description of angioma of the brain and retina, the attention of the medical profession has been drawn to the fairly common association of superficial nevi and intracranial angioma. The outstanding work on this topic is the book "Tumors arising from the Blood Vessels of the Brain," by Harvey Cushing and Percival Bailey. Dandy's paper on "Arteriovenous aneurysms of the brain" is very informing. Recently S. Brock and C. Dyke, in *The Bulletin of The Neurological Institute* for July, 1932, in an excellent paper reported eight cases.

X-ray examination of the skull and auscultation of the skull are invaluable in arriving at a clinical diagnosis.

Krabbe's paper apparently is drawing attention to a clinical variation of this picture characterized by convulsive seizures, nevi, mental deterioration and calcification of the cerebral cortex. The condition manifested itself early in life. The x-ray shadows were cast by calcifications not within the brain in the form of definite vessels but were in the layers of the cortex. Therapy is not of much value in this peculiar group. In the usual class as described by Brock x-ray therapy is advocated.

H. R. M.

Spinal Concussion

R. S. Baldwin (*Archives of Neurology and Psychiatry*, 32:493-500, Sept. 1934) reports that in 1933, there were 4 cases at the Cook County Hospital, Chicago, Ill., in which a diagnosis of spinal concussion was made. Two of these patients came to autopsy and the spinal cords were studied

histologically. In the first case there was an injury to the back in an automobile accident; the roentgenological examination showed no fracture of the spine (confirmed at autopsy); in the second case there was a gunshot wound in the back, with some comminution of the eleventh thoracic vertebra, but no pressure on the cord (autopsy findings). In both cases the symptoms were complete paraplegia, retention of urine and feces and marked sensory disturbances to total anesthesia; the first patient showed a syringomyelic dissociation of sensibility. This patient began to improve neurologically after the thirteenth day and might have recovered a considerable amount of function if the decubitus ulcers and bladder infection had not caused a fatal sepsis. In the second case, the course was that of "a complete and rapidly fatal transverse lesion of the spinal cord." At autopsy the spinal cord in both cases showed no gross lesion. Microscopically, however, these spinal cords showed primary and secondary degeneration of the nerve fibers, foci of softening in the parenchyma of the cord and destruction of ganglion cells, but no hemorrhages; these changes were found at all levels, but were most marked at the site of the trauma. The author concludes that trauma can produce "permanent structural changes" in the spinal cord without sufficient damage to the vertebrae to cause impingement on the cord.

COMMENT

This phenomenon is of great clinical and medico-legal importance. At one period its existence as such was doubted. It required the experience of the war and of animal experimentation to prove its real existence. Hassin, a careful neuropathologist, has reported several cases. The exact mode of its development is not at all clear. The reviewer must confess his ignorance on the basis of the limited amount of pathological change found in spinal cords at autopsy. The very fact that it can happen is a good reason for calling the attention of the general practitioner to this paper.

H. R. M.

Cellular Reactions of the Spinal Fluid in Brain Tumors

H. Roger and E. Pekelis (*Revue neurologique*, 41, pt. 2:346-362, Sept. 1934) note that lumbar puncture in cases of brain tumor usually shows the cerebrospinal fluid under increased pressure; and the albumin content, but not the cell count, increased. An increase in the cell count must not, however, be considered to contraindicate a diagnosis of brain tumor. In 36 cases of proved brain tumor, 9 showed an increased cell count in the cerebrospinal fluid; and in 25 cases with a probable diagnosis of brain tumor, 5 showed an increased cell count. In a review of the literature, the authors collected 214 cases of brain tumor in which cell counts of the cerebrospinal fluid were made, and in 70 of these cases increased cell counts were found. In most of these cases, the increase in cells was relatively small—the average count being 8.8 per c.mm. in the authors' cases. The cells were practically always lymphocytes. In a few cases of brain tumor, a marked increase in the cell count has been recorded. In the authors' cases with a slight increase in the cell count, there were no clinical signs of meningeal irritation. In these cases, the pressure of the cerebrospinal fluid was increased in all but 2 cases; there was some increase in albumin, but this was not parallel to the increase in cells. In most cases the tumor was located in the posterior portion of the brain.

COMMENT

Other papers bearing on this problem have been reviewed previously. The conclusions of the authors have been attested by numerous observers. It has been our privilege to treat several cases of brain tumor with an unusually high cellular reaction in the cerebrospinal fluid.¹¹ A paper bearing on this particular subject was published in this *Journal* in August, 1933.

Only recently—Nov., 1933—we encountered another instance of this nature. A female, age 59, presented signs pointing to a left-sided intracranial lesion. Its progressive development and the beginning of an early papilledema pointed to a brain tumor.

Spinal fluid examinations showed two fluids containing 178 and 90 cells respectively (mostly lymphocytes). Because of the occurrence of this high reaction it was postulated that the lesion was deep within the brain invading the ventricular surface, and probably the posterior corpus callosum. The subsequent operation and later postmortem proved this point. The above case corroborates the experience of others.

The point to be stressed is that by far the greater percentage of brain tumors show little if any increase. If the cells are increased it suggests a deep lying lesion invading the ventricular surface.

H. R. M.

The Medicinal Treatment of Chorea

N. Mutch (*British Medical Journal*, 2:246-249, Aug. 11, 1934) reports the use of calcium aspirin in the treatment of 19 cases of chorea, and has found that this drug definitely shortened the course of the disease and diminished the severity of the symptoms at all stages of the treatment; it did not produce any drowsiness or mental depression, and caused no digestive disturbances. Calcium aspirin is less toxic than acetylsalicylic acid and has no irritant action on the stomach or bladder. It is freely soluble, almost tasteless, is rapidly absorbed and is well tolerated in doses of 30 to 45 grains daily. It has a triple therapeutic action in chorea—it is anti-rheumatic, corrects calcium deficiency, and has a sedative effect on the brain. The best results are obtained if the patient is kept in bed during the treatment.

COMMENT

Any form of therapy giving good results in this disease is worth while reporting. Hence the reason for directing your attention to this article despite the small number of cases in the series. It is noteworthy that a "rest in bed" improves the treatment. To me it is the most valuable part of any method of treatment of chorea.

H. R. M.

Physical Therapy

Ultraviolet Light as a Method of Treating Erysipelas

N. E. Titus (*Medical Record*, 140:259-260, Sept. 5, 1934) reports that in clinical experiments at the Columbia University Medical Center, New York City, it has been found impossible to prove that ultraviolet light has a real germicidal action *in vivo*. In cases of erysipelas a portion of the inflamed and noninflamed skin was covered with cardboard and the entire lesion and at least three inches beyond its margin was irradiated with a mercury arc lamp. If the action of the ultraviolet had been purely germicidal, the non-irradiated margin would have extended, but this was never the case; cultures from the skin an hour after irradiation also showed infection still present. The author has come to the conclusion that the effects of the ultraviolet rays in erysipelas are due to a chemical reaction in the skin on certain protein substances, either the bacterial nucleoprotein or the proteins of the tissues producing an increased resistance to the sterilizing action of the bacteria. In the treatment of erysipelas at the Presbyterian Hospital, New York City, a heavy ultraviolet dosage is given so as to cause "a possible protein shock reaction"—for adults from sixteen to twenty times the erythema dose and for infants around one year of age, four or six times the erythema dose. The dose is calibrated according to the efficiency of the lamp used. This dosage causes a true edema of the skin with the formation of blebs, and it is possible that this transudate of serum may result in the formation of an autoantitoxin. The effect of the treatment cannot be judged by any direct effect on the inflammation of the skin, because of the severe erythema produced, but it is judged by the effect on temperature, symptoms, and the extension of the disease. In the cases treated not more than two treatments were used, resulting in a drop of the temperature to normal within two days, a complete subsidence of symptoms, and complete arrest of the extension of the disease. In the majority a single treatment was sufficient, the temper-

ture becoming normal and symptoms subsiding in less than twenty-four hours. At the Grasslands Hospital at Valhalla, N. Y., where the dosage of ultraviolet light was not so carefully standardized, the cases of erysipelas treated with the ultraviolet alone showed a shorter duration of fever and shorter stay in the hospital than those treated with serum alone or with serum and ultraviolet irradiation in combination.

Acne Vulgaris and the Roentgen Rays

G. M. MacKee and F. I. Ball (*Radiology*, 93:261-266, September, 1934) report the treatment of acne vulgaris with the Roentgen rays. Unfiltered rays are used with a kilovoltage of 80 to 100; the dosage is 75 roentgens given to each side of the face (and back and chest when necessary) once a week. Treatment is discontinued when the acne lesions cease to develop, and not more than sixteen treatments are given; often not more than ten treatments are sufficient. On beginning treatment, skin tests for toleration to the X-rays are made, and if the toleration is low, the dosage is reduced to 37.5 roentgens. Patients are tested each week for "impending erythema" by noting increase of local vaso-motor instability with change of posture, pressure, heat, etc. If any signs of impending erythema are found, treatment is discontinued or the dosage reduced. In conjunction with the X-ray treatment, attention is given to the general health, hygiene and diet; and if indicated, remedies are given by mouth. In a total of 5,376 cases of acne 606 were treated with the X-rays, and were under observation for several years; of these approximately 50 per cent. were permanently cured in a period of six weeks to four months. Of 422 patients under observation for a similar length of time and not given X-ray treatments, 40 per cent. were cured in a period of six months to two years, most of them requiring over eight months of treatment. With X-ray treatment 83 per cent. of patients were clinically cured or almost completely cured within four months, while without X-ray treatment 62 per cent. were cured or almost completely cured, but only after six months or more of treatment. Recurrences were more frequent after clinical cure with X-ray treatment, especially in patients at or near puberty; the authors therefore prefer to hold X-rays "in reserve" in the treatment of acne until the patient is well beyond puberty. With the technique used there was no injurious reaction to the X-ray treatment. The X-rays, the authors believe, give the best results in both clinical and permanent cure of acne in the shortest period of time, especially if combined with "general medical attention."

Treatment of Sciatica by "Dielectrolysis" of Calcium

G. Bourguignon and R. Hummert (*Journal de radiologie et d'électrologie*, 18:531-534, Oct., 1934) prefer the use of the term "dielectrolysis" to ionization, as representing more exactly the nature of the process, i. e., electrolysis through the tissues. They have used calcium dielectrolysis (or ionization) in the treatment of sciatica for the past thirteen years. The positive electrode is moistened with a solution of calcium chloride; a mild current is used and treatments are given for thirty minutes. The usual course of treatment consists of fifteen applications given in four weeks; after an interval of three weeks, the course is repeated. In the usual type of sciatica, the positive electrode is placed along the spine in the lumbo-sacral region, and the negative electrode in the triangle of Scarpa. In cases in which the nerve roots are involved, the current must be directed through the spinal cord by the cerebral route, rather than through the lumbo-sacral plexus, and for this purpose the positive electrode is placed over the (closed) eyes, and the negative electrode on the spine in the lumbo-sacral region; a very weak current is used, between 2 and 4 milliamperes. This treatment may be supplemented by the administration of calcium by mouth. In 259 cases of sciatica treated by this method, the pain was relieved in 83 per cent. Little, if any, improvement was noted in the first week of treatment, but after the seventh or eighth treatment, improvement began, as a rule, and was steadily progressive, continuing even after the first course of treatment

was terminated. In some cases a second course of treatment was necessary to give entire relief, and occasionally a third course. Occasionally improvement was not noted until later in the course of the treatment, but in these cases the progress of the case was usually satisfactory after improvement began. Recurrences were rare; if there was a recurrence without any new complications, it yielded readily to another course of treatment.

A New Type of Electrode for Diathermy

P. E. Jouard (*Archives of Physical Therapy*, 15:473-474, August, 1934) describes a new electrode for use in diathermy, utilizing a form of cellophane that has high electrical conductivity, instead of being an insulating material. This is coated with a special adhesive paste and sealed with a protective film; this protective film can be easily removed by moistening and stripping it off, the adhesive surface then being ready for application to the skin. This electrode is made in strips 3 in. wide and 10 yards long and wound on spools very much like ordinary adhesive tape; it can be applied like adhesive tape, but the adhesive used is non-irritating and water soluble and can be easily removed from the skin by wiping it off with a moist towel. The leads connecting the electrical apparatus with this electrode are light aluminum or copper "ribbon" insulated with a special preparation applied like varnish. This electrode is plastic, and can be molded to any part of the body, and forms perfect contact; there are no hot points or sparking. It is very light and comfortable for the patient; it has high electrical conductivity and distributes the heat evenly; it is sanitary, as a new electrode is used for each patient. This electrode has given very satisfactory results in the author's practice in various conditions in which diathermy is indicated.

Thermostatically Controlled Heating Hood in Vascular Diseases of the Lower Extremities

W. Bierman (*Archives of Physical Therapy*, 15:530-532, September, 1934) notes that in treating thrombo-angiitis obliterans by means of hyperpyrexia induced by short wave radiation, about three years ago, he found that some cases responded well and others showed no improvement and sometimes an increase in pain and cyanosis. Recent physiological investigations have shown that while heat produces a vasodilatation and thus an increase in the collateral circulation when the normal channels have been partially or entirely occluded, yet the diseased condition may be aggravated by the application of too much heat. For each case there is an optimum amount of heat to be employed depending upon the degree of pathological involvement. Recently the author has employed a thermostatically controlled heating hood for the treatment of vascular diseases of the extremities, by means of which the amount of heat to be applied can be exactly regulated. A simple bimetallic thermostat is employed, and a heating hood with four carbon filament lamps—each lamp being individually controlled, so as to avoid marked differences in temperature in various portions of the hood. This hood has been used with good results in the treatment of arteriosclerotic gangrene, intermittent claudication and thrombo-angiitis obliterans. Five illustrative cases are reported.

Public Health, Industrial Medicine and Social Hygiene

The Importance of an Epidemiological Investigation

A. L. Gray (*New Orleans Medical and Surgical Journal*, 87:239-244, October, 1934) notes that preventive measures in the control of communicable diseases have been primarily "general in their scope directed at the masses." But if the incidence of these diseases is to be further reduced materially, more emphasis must be placed upon the study of cases and groups of cases with a view to controlling the source of infection. The value of a thorough study of each case of typhoid fever to determine the source of infection is shown by a study of three small groups of cases—two of these

groups occurring in Mississippi, the author's state. In all these groups the infection came from typhoid carriers, and in two instances, the investigation of the earliest cases would probably have led to the discovery of the carrier and the prevention of some of the later cases. In diphtheria relatively close contact is required for the spread of the disease, and a close follow-up of each case is necessary to determine the source of infection; carriers are an important means of spreading the infection in diphtheria. In Yazoo County, Mississippi, a close study was made of several cases of diphtheria occurring in 1933 and their contacts—343 individuals in all. Nose and throat cultures were made, and 89 of these persons were found to harbor diphtheria organisms either in the nose or throat or both; of these 58.4 per cent. had the organisms in the nose alone, indicating the importance of the nasal carrier in the spread of diphtheria. In scarlet fever also the importance of studying each case to determine the source of infection should be emphasized as an important factor in preventing further spread of the disease.

Standard Blood Agar Plate in the Control of Scarlet Fever

H. R. O'Brien and R. P. Fowler of a District Department of Health of Lorain County, Ohio (*American Journal of Public Health*, 24:870-872, Aug., 1934), report that in their district a throat culture on a blood agar plate is made routinely when a case diagnosed as scarlet fever is first seen. Of 231 cases in which a throat culture was made within a week of onset 165, or 60.9 per cent., showed the characteristic hemolytic streptococcus, beta type; and of those negative on the first culture, 38 were later positive. Most of the cases diagnosed as scarlet fever were quarantined without reference to the culture, but in doubtful cases quarantine was often not enforced until the culture became positive. It was of special aid in diagnosis when the rash was faint or difficult to distinguish from other rashes. The culture was always employed to determine the time of release. The Ohio law requires at least twenty-one days' quarantine for scarlet fever. A throat culture is made in each case on the eighteenth day after onset; and if this culture is negative, the patient is discharged from quarantine on the twenty-first day. If the culture is positive, cultures are repeated until a negative is obtained before the patient is discharged. The cultures were also made in examining suspects; 751 such cases, aside from those quarantined, were cultured and 181, or 24.1 per cent., were found to be positive. "Some degree of restraint" (exclusion from school, etc.) was imposed on these positive cases and thus the number of scarlet fever organisms "in circulation" was considerably lessened. Cultures were also of value in cases of severe sore throat without rash or strawberry tongue to determine whether the throat condition was due to hemolytic streptococci or not. Cultures are to be considered only as a part of the total evidence in each case in determining a diagnosis of scarlet fever, but the authors have found them to be of definite value, especially in locating "the suspicious or sub-clinical" cases of scarlet fever and in differentiating it from other diseases with which it may be confused.

COMMENT

To break the chain of infection is one of the objectives of the medical care of persons having communicable diseases. We may break the chain by finding and rendering non-infectious the infected persons, or by rendering the susceptibles immune to infection, or by both methods. Physicians as well as health officers are concerned with the techniques for carrying out these procedures.

W. C.

Dermatitis in the Oil Refining Industry

L. Schwartz (*American Journal of Public Health*, 24: 948-950, September, 1934) reports a study of the occurrence of dermatitis among workers in 8 oil refineries employing about 14,000 men. Examination of the sickness records of 11,000 workmen, for a period of two years, showed 196 cases diagnosed as industrial derma-

titis. In 4,500 workmen who were examined during the author's survey, 488 showed skin diseases, of which only 25 were definitely not of industrial origin. The chief skin hazard was found to be burns, either from explosions and fires, or from acids and alkalies. About 10 per cent. of the men examined showed multiple small, flat pigmented papillomata on the hands and forearms, and sometimes even on the legs. Telangiectatic spots were found on the exposed parts of the skin in laborers caused either by exposure to hot coke when cleaning out the stills, or by dipping the hands into hot paraffin. In this survey, 12 cases of skin cancer were found, located chiefly on the face and lips (9 cases). Three of the refineries studied pressed paraffin; 81 men who worked on the presses were examined, and 25 of them showed characteristic wax warts. These warts are more raised and more verrucous than the papillomata found on other workers, and are non-pigmented; 19 cases of oil acne were also found among these 81 paraffin pressmen. One case of epithelioma of the scrotum was found in this group, and this workman also showed many wax warts on the hands and forearms, one of which was becoming epitheliomatous.

Silicosis and Silico-Tuberculosis

W. C. Hall (*Journal of Industrial Hygiene*, 16:300-303, September, 1934) reports a study of 95 cases of silicosis and silico-tuberculosis in which the diagnosis was made by radiological examination at the University of Pennsylvania. In this series, 59 cases showed uncomplicated silicosis; three-fourths of this group showed no symptoms referable to the respiratory system, and in only a small percentage were the chief symptoms respiratory. The respiratory symptoms that were most important were cough and dyspnea. The majority of these patients who showed the early, slowly advancing interstitial type of silicosis were coal miners and most of them had worked in the mines more than ten years. Emphysema and restriction of diaphragmatic movements were common in this group; very few had respiratory symptoms as the chief complaint on admission to the hospital, but a number had rather severe cough and dyspnea "as a side issue." Respiratory symptoms were not as frequent in uncomplicated silicosis of the nodular predominance type, which was the type found in over half the 59 cases studied. There were 36 cases in this series with definite radiological signs of tuberculosis in addition to silicosis; no sputum examinations were made in 18 of these cases; tubercle bacilli were found in 11 of those cases in which the sputum was examined. Respiratory symptoms, especially cough and dyspnea, were more frequent and more severe in this group than in the cases of uncomplicated silicosis. There seemed to be no relationship between the amount of pathological change in the lungs and the time the patient had worked in the coal mines in this group. The author notes especially the relatively rare occurrence of respiratory symptoms in cases of uncomplicated silicosis, as showing the need for radiological examination in order to make a correct diagnosis in persons exposed to silica dusts.

Adequacy of Treatment in the Control of Syphilis

U. J. Wile (*Journal of the American Medical Association*, 103:648-651, Sept. 1, 1934) notes that the public health aspects of an attack on any disease involves two problems: First, the adequate treatment of existing cases so that the disease ceases to be a menace to the person affected and those in contact with him; and second, the prevention of the development of new cases. The latter presents a difficult problem in the case of syphilis—a "major problem deserving the greatest effort" for its solution. Fortunately a marked advance has been made in the early diagnosis and adequate treatment of syphilis; not only does early diagnosis and early treatment render the infected individual less a menace to others; but also modern therapy has been found to be adequate to prevent the development of the late sequelae of the disease to so great an extent that these may now be regarded as "preventable accidents."

Syphilis Clinics in New York City

G. L. Carr and J. A. Goldberg (*Journal of Social Hygiene*, 20:340-348, Oct., 1934) report a study of 52 syphilis clinics in New York City. They found that the estimated cost for the treatment of syphilis in its early stages in the average pay clinic was from \$125 to \$165; this is "apparently too high," as the number of patients in pay clinics has steadily decreased in the past few years, with a corresponding increase in the number in free clinics. In some clinics there was crowding of patients and lack of privacy. In some clinics physical examinations were inadequate and no urine analyses were made. Darkfield examinations were made by the clinic doctors in only 9 clinics; by the hospital laboratory in 34 clinics; by the City Department of Health in 5 clinics; and in four no darkfield examination was made. The plans of treatment used in the different clinics were quite uniform; 45 clinics used neosalphenamine as the basis of treatment. The treatment provided was adequate if the patient attended regularly. The methods of treating infants and children were more diverse than for the treatment of adults; a more uniform plan for these patients should be agreed upon, the authors believe.

Ophthalmology

A New Method for the Localization of Intra-Ocular Foreign Bodies

M. E. Brown (*Southern Medical Journal*, 27:833-837, October, 1934) notes that the Sweet method for the localization of intra-ocular foreign bodies gives good results in many instances, and especially in large industrial centers where radiologists are frequently called on to use this method. However, in smaller industrial centers where its use is less familiar, errors are sometimes made. At the New Orleans Eye, Ear, Nose and Throat Hospital, the only hospital in that city equipped with a giant magnet, 45 cases of intra-ocular foreign body were treated from 1928 to 1933 inclusive. As the Sweet method failed to localize the foreign body correctly in a few of these cases, the author has recently used a new method as a routine. The great magnet is first employed, with the patient lying on the operating table instead of standing; if there is a magnetic foreign body within the eyeball, the eyeball accommodates itself to parallelism by means of the magnet. If there is no ocular response to the magnetic current either the foreign body is non-magnetic or it may have passed through the eyeball into the orbital cavity. In such cases, a lateral radiogram is first made to determine the presence or absence of a foreign body in the orbital cavity. If such a body is found, a double exposure is made in the posterior-anterior position; for such a double exposure the patient's face is placed on the film and the eyes directed downward for the first exposure, then upward for the second exposure. If two objects are shown on the film, the foreign body is within the eyeball; if only one is shown it is either extra-ocular or intra-ocular at the center of rotation; in such a case the eyes are moved from right to left. The posterior-anterior view, the author has found, gives maximum sharpness of an intra-ocular foreign body with the least distortion and magnification; with the usual anterior-posterior view the foreign body is less clearly shown and magnification and distortion are greater. The double exposure method has the advantage of "extreme simplicity," as it requires no other apparatus than an ordinary X-ray machine.

COMMENT

Foreign bodies in the eye and orbit are so much less frequent than they were, even in industrial centers, that few roentgenologists outside the special eye hospitals have had any great experience in their localization.

Failures are often not due to any defect in the Sweet method, either in theory or in application, but to faulty photographic technique. A negative that might beautifully reveal a bullet or a kidney stone might not show the tiny foreign body in the globe at all. Neither is it safe to apply the tremendous pull of the giant magnet to an eye, without

first securing all possible information about the location, and especially the size of the foreign body.

E. M. A.

Irradiation Cataract

J. G. Milner (*British Journal of Ophthalmology*, 18:497-511, September, 1934) briefly reviews the literature on cataract due to irradiation by X-rays or radium, and reports 36 cases in which the eyes had been exposed to X-rays or radium, usually in the treatment of tumors of the nasal region. Of the 36 cases, 5 had been given both X-ray and radium treatment, 8 X-rays alone and 23 radium alone; of the group of 5 patients treated by both X-rays and radium, 4 are regarded as being exposed to the X-rays only, as the radium was applied at some distance from the eye. Therefore in this series of cases, the eyes were exposed to the X-rays alone in 12 cases, to both X-rays and radium in one case, and to radium alone in 23 cases. Of the 12 cases treated by the X-rays alone, 9 developed irradiation cataract; one was treated recently and is therefore in the latent stage, one showed some lens changes but not typical cataract, and one was definitely negative. Of the 23 cases treated with radium alone, 3 showed definite irradiation cataract, 3 showed some post-cortical vacuoles, and 17 were negative. In the group treated with X-rays, 7 of the 9 who developed cataract were given only one course of deep X-ray therapy. In the group treated with radium, the dosage in the 3 cases that developed cataract varied from 624 to 14,380 milligram hours; the active rays were of the gamma type. In the 17 cases that were negative for cataract, the dose varied from 4.7 to 1,128 milligram hours; in the case with the highest dosage, radon seeds were used, some of which were applied at the border of the nose and probably had no effect on the eye, so that the maximum ineffective dose is probably not so high. In 14 of the 17 cases unscreened radiation was used, so that the active rays were of the beta type. These findings indicate that the beta rays are not injurious to the lens. In the one case treated by both X-rays and radium, typical irradiation cataract developed. Irradiation cataract, the author finds, has a typical appearance, with the formation of vacuoles, cloudy areas and later a plaque; it is always located in the posterior cortex of the lens. The author concludes that if protection of the eyes during deep X-ray treatment and heavy gamma radiation with radium is impracticable, efforts should be made to devise some method of screening the lens without diminishing the therapeutic effect of the radiation.

COMMENT

Too much emphasis cannot be laid upon the danger from the use of radium and the x-ray about the eyes. This danger is probably underestimated, since the ill results may not be noted by the patient till he has forgotten all about the exposure.

There are, of course, conditions enough which justify the assumption of such risks provided all possible precautions are taken to minimize them, but the days of indiscriminate radiation for minor skin and conjunctival conditions are rapidly passing.

At the same time it should be emphasized that irradiation apparently causes a single rather definite type of cataract and cannot certainly be charged with the others.

E. M. A.

Ocular Lesions from Thallium Acetate Poisoning

C. M. Swab (*Archives of Ophthalmology*, 12:547-559, October, 1934) notes that thallium acetate has been used as a depilatory agent by dermatologists, but is generally regarded as being too toxic for this purpose. Most of the cases of thallium acetate poisoning recently reported have been due to the use of proprietary cosmetic depilatories, especially Koremlu Cream. Several of these cases have shown definite evidences of a toxic effect on the optic nerve; the symptoms were for the most part those of bilateral retrobulbar optic neuritis of gradual development, indicating a chronic intoxication. Other ocular symptoms have also been reported by various observers. The author reports animal ex-

(Concluded on page 397)

Editorials

The Medical Interdict: An Abstraction

A formidable ecclesiastic weapon is known as the interdict, which means that certain limitations are placed upon baptisms, confirmations, marriages, extreme unctions and burials in a district where the powers that be have set certain principles at naught, until the said powers capitulate.

From an abstract point of view the abrogation of the spiritual necessities of men would seem to be a more serious matter than the abrogation of physical necessities, such as a strong medical profession might conceivably interdict in outrageous circumstances.

Practically, however, whenever any mention is made of a strike on the part of the medical profession—an actual battle being on—the utmost horror is always expressed, just as though declining to treat anyone with boils or piles or eczema, for a season, were somehow more harsh than refusing fully to administer religious rites.

It is quite in order, nowadays, for large numbers of the clergy to plan a strike in the event of war; and we have witnessed the entire withdrawal of large business interests from communities in the course of strikes.

There is a deal of humbug in the logic of the position that denies to physicians, in any circumstances, the right to strike in some manner or degree.

Capital can strike while men starve, ecclesiastics can strike while men live and die in sin, but boils and piles and eczema are more precious than anything else in the world.

As a matter of fact, if we possessed real unity and power our strikes would be as moral and effective as those of big business or the ecclesiastical brethren.

Right at the present moment there is a nationwide strike of capital, but there are no charges of moral turpitude flying about.

The subject can be discussed academically at the moment, since no immediate issue has us in a heated state of mind and there is little likelihood that we shall be regarded as monsters for even harboring these thoughts.

We submit for abstract consideration the idea of a limited strike in certain imaginable circumstances.

Relief of Surplus Population

The Lindbergh case might be a lesson. Why not have a National Clean-up week and unearth the million aliens who have entered illegally? Then deport the 4,000,000 aliens who have not taken out naturalization papers. Moreover, we might add another million of those who have taken out first papers; they accept all of our charities but the country is not good enough for them to complete their naturalization. If we deport 6,000,000 aliens we will do a great deal to solve the crime prob-

lem and also help the unemployment situation. We are overpopulated, partly due to inviting all of the prize breeders of the world to our shores.

M. W. T.

Oppressive Regimes and Sex

The homosexual element in Shakespeare's Sonnets has grieved and puzzled many ardent followers of the bard. Addressed to another of the same sex, and breathing the same (or a greater) degree of passion as that associated with normal love, many attempts have been made to explain them away. These attempts are really ineffectual. Frank Harris comes as near as anybody to exculpating the "Sweet Swan of Avon" from the charge of inversion, but even his able and ingenious argument leaves the impartial student cold.

One would be better occupied in examining the peculiar environment of our great idol, with a view to discovering the factors that really did make for homosexuality.

For one thing, there is the marriage forced upon the boy Shakespeare by the brothers of the elderly Anne Hathaway. Then comes the second disillusionment, as regards the love of woman, through the fickle Mary Fitton.

A very potent auxiliary factor, in the case of one conditioned as was Shakespeare, is the fact that the members of his profession were social outcasts in a very real sense. The actor had no respectability whatsoever, and escaped the most contemptuous treatment only in case some powerful nobleman gave him a precarious protection. Think of this in conjunction with the fact that women's parts were played by boys and much becomes clear. It is perfectly evident that women of the sort that might appeal to the esthetic and intellectual sensibilities of Shakespeare were quite absent from the theatrical sphere of his life.

A social background so oppressive in matters of sex gives morbid repercussions in every age. In the militarized Greece of the heroic age, which marked women off as mere breeding apparatus, homosexuality was an accredited institution. In the oppressive German State of to-day homosexuality cannot be eradicated by butchering a Roehm here and there; the State itself bears every inherent factor making for homosexuality, and again we have women relegated to the cowshed, while only heroes rant and rave in camp (and boudoir).

Let us remind ourselves of what happened in Plymouth Colony. Bradford, in his *History of Plymouth Plantation*, speaks of the severe discipline of the Colony with regard to sexual evils, yet it is clear from what he says that he realized that its very austerity might be related to the outbreaks. This fundamentally wise man in a benighted age, morally pledged to carry out its mandates, has this to say about the results of his own disciplinary efforts: "And yet all this (the severest discipline)

could not suppress the breaking out of sundry notorious sins (as this year—anno Dom. 1642—besides others, gives us too many sad precedents and instances), especially drunkenness and uncleanness; not only incontinence between persons unmarried, for which many, both men and women, have been punished sharply enough, but some married persons also. But that which is worse, even sodomy and buggery (things fearful to name) have broken forth in this land, oftener than once."

The world of the theatre, in Shakespeare's day, was more oppressed than the Plymouth of Bradford, for there were no women in it and the actors, in any case, were rated as perhaps the lowest rogues in the realm. In such circumstances, what angel's wings might not be tarnished?

Health in Russia

The alleged improvement in the neuropsychiatric health of the Russian people is ascribed to economic security and sex freedom. Yet it is hard to believe that these factors could offset those making for ill health. Consider the findings of William Henry Chamberlin in the course of observation covering a period of twelve years in Russia (*Russia's Iron Age*, Little, Brown and Company). What about the permanent system of terrorism and espionage? What about the "military feudal exploitation" and the State-organized famine of 1932-1933? What about the "tragedy" and "ruthlessness" of the régime? In what way do wholesale "atrocities," "persecutions" and "brutalities" make for national health? Since when has "forced labor at practically no wages" and a "minimum of subsistence rations" made for nervous and mental normality? The famine, "deliberately employed by the government as a means to overcome resistance," occasioned a mortality of 10 per cent among the affected millions. The peasants have felt that "more was being extracted from them, in the form of products and labor, than they were getting in the form of clothes and boots, tea and sugar and soap. Indeed, these last commodities were often completely lacking in the rural districts." Where is the boasted economic security in all this? How strange it is that seventeen years of savagely enforced toil and limitless hardships and deprivations should have left the Russians healthy. And Chamberlin insists that the worst of the czarist methods have been extended in scope and "efficiency." The toll of lives, he declares, has been greater than under Fascism or Hitlerism. These people have to stand in queues for hours for every necessity of life, according to Chamberlin.

"The first outlines of Russia's new system of planned economy have been written on the living bodies of the present generation as sharply as if with a sword . . . There is something epically and indescribably tragic in this enormous dying out of millions of people [in the deliberately employed famine], sacrifices on the altar of a policy which many of them did not even understand."

Rubin, in his *I Live to Tell* (Bobbs-Merrill), quotes the "horribly disillusioned" John Reed as saying: "There is no freedom here, no justice, no opportunity, not enough bread for the masses and no hope."

But the young, nevertheless, says Chamberlin, are enthusiastic. They "enjoy the process of marching in step, of being bound together by compulsory common ideas, and of figuratively and literally knocking on the head critics of those ideas." It is this, we hold, even more than economic security and sex freedom, which makes for Russian health, such as it is.

Thus is "health" attained by one nation. But the Russian price for health is a costly and ghastly thing. Other nations must find a better way.

Miscellany

The Medical Practitioner

I had the privilege recently of witnessing an important operation conducted by a distinguished surgeon. I have long had a deep regard for men of the medical profession. I have found them, as a rule, generous and charitable. I know from personal observation that they do far more good than popular opinion accredits them. Since viewing that operation my reaction deserves record and widespread recognition.

In the first place, many years of laborious preparation at college and afterwards are requisite to make a good practitioner for the bedside or the operating room. For the operation itself what meticulous scrubbing is undergone, what a multiplicity of precautionary measures to assure the utmost attainable antisepsis! It is astounding.

And now the operation. What skill, what deftness, what delicacy, what composure, what conscientiousness to conserve life and restore health! Again, it is startling.

And yet when that competent surgeon or physician sends his bill, what complaining, what criticizing one hears in many cases!

To my mind the charge of the successful medical practitioner is modest. The beneficiary of his skill, as a rule, loses sight of his benefit and of the many years or struggle it has cost to furnish him the skill needed in his emergency.

The physician's charge is usually adapted to the patient's circumstances. Accordingly, where one can afford it the payment should be made not only with promptness but with gratefulness. If you are helped by the advice or treatment you are given you receive a great deal more than you give. In many instances I should be disposed to a more severe medical charge. It would be a salutary warning to many people whose maladies are the result of carelessness.

—REV. ALEXANDER LYONS in *The Supplement*.

Fight Cancer. Investigate any lump (especially in breast) no matter if small and painless. Any crack or sore (especially of lips) which does not heal in two weeks. Any unusual discharge or bleeding (especially at change of life). Persistent indigestion and hemorrhoids.

Jagged, sharp teeth may irritate gums or tongue. Do not irritate moles.

Correspondence

From Our Washington Correspondent

Cancer

In this restless age when repose of mind and body seems to be unbearable for the average man and woman, when to be "old fashioned" is to be an object of derision and the ancient landmarks are broken down, it is inspiring to note patient, enduring work of the scientists who find recompense beyond the thought of money, especially in our own noble profession.

The subject of cancer has focussed the eyes and brains of the research workers throughout the world for over half a century. Its etiology and cure will elude us, but hope springs eternal, though any fresh discovery heralded in the newspaper is viewed with distrust by those who have devoted their lives to the solution of the mystery. "Cures" have been innumerable. The writer recalls his own experience at the Memorial Hospital, when hardly a week passed without his receiving a letter from some charlatan who pleaded for an opportunity to test his "cure" in the institution devoted to the treatment of malignant disease.

The sad experience of sufferers before the advent of the roentgen ray and radium as adjuncts to surgery, and since, is known to every physician here and abroad. We are still groping and continue to report our "cures" at the end of five years—all too short a limit in the treatment of the dread disease, which returns not only in five, but in ten years after radical removal by the knife.

Other mysteries have been solved in this wonderful age, why not the cause and cure of this malady which afflicts us? We plead for its early recognition in the precancerous stage and all surgeons now know that every suspicious nodule, pigmented mole and irritating wart should be radically excised. There is nothing new about this; it is as old as the hills. But when it comes to the early recognition of intra-abdominal cancer and its cure—then we are still groping.

The battle against disease will yet be won. What matter the sacrifice of the fighter? —H. C. C.

Contemporary Progress

(Concluded from page 394)

periments to determine the effect of thallium acetate poisoning on the structures of the eye. Rabbits, dogs and rats were used; the thallium acetate was given by subcutaneous injection to rabbits and dogs, by mouth to rats. The rats were more resistant to the drug than the other animals, in which thallium acetate caused death in relatively small doses. In none of the animals did cataractous changes develop in the lens, but pathological changes were found in every other part of the eyeball, and the optic nerve, the retrobulbar soft tissues and the muscles. In many of the structures of the eye, the changes were less marked in the rats than in the larger animals, but the changes in the optic nerve, its sheaths, the choroid, the retrobulbar connective tissue and muscles were similar in all cases. The optic nerve showed neuritis and perineuritis. It is quite possible, therefore, to explain the ocular symptoms observed in cases of thallium acetate poisoning on the basis of the effects of the drug on the various parts of the visual pathway.

COMMENT

Thallium has been used for many years as a rat poison, from the accidental consumption of which occasional human fatalities have been reported. Since its use as one of the commercial depilatories, which seem so essential to the better half of the human race, numerous cases of chronic poisoning have been reported in the form of a retrobulbar neuritis, while in many more it has probably been overlooked. In its selective affinity for nerve cells it is much like lead, to which it is spectroscopically very close.

E. M. A.

Newer Knowledge of Bacteriology in Ophthalmology

G. H. Gowen (*American Journal of Ophthalmology*, 17: 820-825, Sept., 1934) reports a study of the relation of the rough (R) and smooth (S) colonies of staphylococci of the skin surfaces around the eye to common staphylococcal infections around the eyes, and especially to styes. He found that in 10 normal persons, who never had any pathological condition of the eyelids, the skin surface organism was *Staphylococcus albus* and the average percentage of R to S colonies was R 30 and S 70. In 6 patients predisposed to furunculosis and styes, *Staphylococcus aureus* was found in 5 cases and *Staphylococcus citreus* in one, and the percentage of R to S was R 2 and S 98. If one side showed a greater tendency to infection than the other, the R percentage was lower on the affected than on the non-affected side. In patients showing a rapid recovery from styes, there was an associated high percentage of R colonies. These findings lead the author to conclude that the S to R mutation of skin staphylococci is a protective mechanism; and the percentage of S to R mutation may be taken as indicating the power of the skin to resist infection and to rid itself of exogenous organisms. Immunes and susceptibles to styes and other common staphylococcal infections around the eyes can be determined by means of the R to S percentage; and if a means of building up skin immunity in susceptibles can be found, such troublesome infections can be prevented to a great extent.

COMMENT

The author shows quite plausibly, from his own studies and those of many of the older bacteriologists, that the high proportion of rough colonies, whether it is the cause or the effect, is at least an indication of a cutaneous immunity. He hopes to present in subsequent studies biological methods by which the amount of this immunity may be increased and measured. If he can do this he will have solved one of the most annoying of our minor problems.

E. M. A.

Pathogenesis of the Retinitis of Nephritis

A. Magitot and A. Dubois (*Presse médicale*, 42:1482-1485, September 22, 1934) note that the retinitis of Bright's disease was formerly attributed largely to the toxic or uremic factor, but more recently has been attributed to the vascular factor. It is recognized also that a similar form of retinitis may occur with arterial hypertension independent of a renal factor. From their study of this form of retinitis, the authors are convinced that local vascular changes alone cannot account for the pathological changes in the retina; but that an important factor is increased intracranial tension. This increased intracranial tension plays an important role, but is not the sole cause of the retinitis; associated with it are the changes in the local (retinal) arterioles and local arterial hypertension. These factors in combination account for the typical pathological changes of so-called nephritic retinitis—edema, hemorrhages, exudates. The authors have found that reduction of the intracranial pressure by lumbar puncture has a very favorable effect in controlling the pathological changes and the symptoms of this type of retinitis.

Economics

(Concluded from page 389)

laws to supply medical care of high quality to all the people. It has enunciated a set of ten principles to guide the profession in meeting the questions of medical service. The Milbank Fund (Mr. Seydenstricker) has stated that "Although the public interest is the most important, it will not be best served unless the professions which render medical service to the public cooperate freely in formulating a health insurance system—and are fully taken into account." The work and advice of the medical profession on these economic questions are already held in high respect. In different parts of this country plans

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for solving these questions are undergoing trial. Several years ago laws like the Workmen's Compensation Act of New York were enacted and although successful administration depended on the medical profession not one doctor was placed on a Commission. Today we read that while on the National Economic Security Commission just appointed by our President there is no doctor, yet there was appointed a Medical Advisory Board of physicians to assist the Committee. The President has further stated (November 14, 1934) that "whether we come to this form of (sickness) insurance soon or later on, I am confident that we can devise a system that will not hinder the remarkable progress which has been made and is being made in the practice of the professions of medicine and surgery in the United States." In time of depression and great distress quack social remedies, more numerous even than those proposed in the prolonged serious illness of an individual, are proposed. Alert, unbiased, intelligent study of all remedial plans is the great need. No group of people has that need more constantly in mind than doctors. No group is willing to make more sacrifices—no group has made more sacrifices—to remedy or alleviate the underlying distressful conditions. As a profession it will continue to point out weaknesses in proposed social remedies for the sick before enactment into law makes correction difficult or impossible. It will ever contribute its part on the constructive side to the enactment of those laws most conducive to the health and welfare of the sick.

Experiments in the Treatment of the Intestinal Phase of Vitamin B. Deficiency

(Concluded from page 381)

function poorly in an alkaline medium. When large amounts of gas form in the large bowel, it is best eliminated by colonic irrigations. The irrigant used is a saline solution, and, on alternate days, two or three cubic centimeters of Lugol's solution are added to the irrigant. This procedure must be followed for many months, as so far no other method has been found that will give satisfactory results. The irrigations are taken daily for one or two months, and then the interval between irrigations is gradually increased. The irrigations have no harmful influence on the colon, and do not tend to produce constipation; in fact, they have the opposite result.

COMMENT

The number of patients found showing the intestinal phase of vitamin B deficiency is very large. Many of them have other physical changes outside of the intestinal tract. Because of the fatigue which they experience, many are considered neurasthenic. A new attitude toward these cases gives pleasing results, as some of them can be relieved entirely, and others considerably benefited by the measures applied.

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510 Ocean Avenue.

Ten Principles of A. M. A.

1. All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.
2. No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of medical service must be borne by the profession.
3. Patients must have absolute freedom to choose a legally qualified doctor of medicine who will serve them from among all those qualified to practice and who are willing to give service.
4. The method of giving the service must retain a permanent, confidential relation between the patient and a "family physician." This relation must be the fundamental and dominating feature of any system.
5. All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them.
6. However the cost of medical service may be distributed, the immediate cost should be borne by the patient able to pay at the time the service is rendered.
7. Medical service must have no connection with any cash benefits.
8. Any form of medical service should include within its scope all qualified physicians of the locality covered by its operation who wish to give service under the conditions established.
9. Systems for the relief of low income classes should be limited strictly to those below the "comfort level" standard of incomes.
10. There should be no restriction on treatment or prescribing not formulated and enforced by the organized medical profession.

MEDICAL BOOK NEWS

Edited by TASKER HOWARD, M.D.,

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December, 1934

CLASSICAL PARAGRAPHS

I could not sleep all that night, for I was troubled in mind, and the dressing of the precedent day (which I judged unfit) troubled my thoughts; and I feared that the next day I should find them dead, or at the point of death by the poison of the wounds, whom I had not dressed with the scalding Oyl. Therefore I rose early in the morning, I visited my Patients, and beyond expectation, I found such as I had dressed with a digestive only, free from vehemency of pain to have had good rest, and that their wounds were not inflamed or tumefied; but on the contrary, the others that were burnt with the scalding Oyl were feaverish, tormented with much pain, and the parts about their wounds were swollen.

Ambrose Paré, 1575; English translation by Thomas Johnson; printed by Mary Clark, London, 1678, p. 272.



REVIEWS

Tuberculosis

TUBERCULOSIS IN THE CHILD AND THE ADULT. By Francis M. Pottenger, M.D. St. Louis, C. V. Mosby Company, 1934. 611 pages, illustrated. 8vo. Cloth, \$8.50.

This latest work by Pottenger is by all means the best that he has turned out and, indeed, may well be considered about the best that has been published in the past year on the subject of Clinical Pulmonary Tuberculosis. The contents are admirably arranged. The information has been brought right up to the minute. The chapters devoted to the discussion of the pathology, pathogenesis and epidemiology are most lucidly and sanely presented. His descriptions of the childhood types of tuberculosis are admirable as well as that of the various types of adult super-infection. The chapters devoted to the treatment of the disease are more replete with information than any of his previous writings. The author still places considerable reliance on Tuberculin—to a degree greater than most other men working in the field. Whether one agrees with all of his conclusions on this phase of treatment or not, it must be admitted that the rest of the section devoted to therapy is most rationally and sanely presented.

All in all, this is a book that your reviewer regards as a masterpiece and urgently recommends it to every present-day practitioner of medicine.

FOSTER MURRAY.

Long Life

THE ANCESTRY OF THE LONG-LIVED. By Raymond Pearl and Ruth DeWitt Pearl. Baltimore. The Johns Hopkins Press, 1934. 168 pages, illustrated. 8vo. Cloth, \$3.00.

This work sums up studies of interest to physicians, but of a kind they are not likely to undertake. It is based on a comparison of the ages of two groups of direct ancestors, one of nonagenarians and centenarians (1879 long-lived,

or from 90 to 113 years of age), the other of unselected common humans. Collaterals, siblings and descendants figure as accessories. The tables, charts, methods and mathematics can best be appreciated in the original.

Instead of the actuarial method, to which we are accustomed, he employs a more complex biologic-mathematic system in making his determinations. Quite true that, "This book cannot be looked upon as easy reading."

It is chiefly with the six immediate ancestors (2 parents plus 4 grandparents) that his deductions deal. These bear also closely on eugenics. But so far not on Mendelianism, a question he proposes to take up later. He also intentionally dodges any general consideration of the factors or mechanisms on which heredity depends in whole or part units,—though phases of this do creep in. He finds it impracticable for his purpose to exclude cases of accidental death.

The medical man, little inclined to wade through details critically, is chiefly interested in his conclusions. He makes out a good case, and supports it from various angles. Only vigilance and persistence could accumulate the basic data.

It speaks for scientific fairness when even an ex-Mainite finds, p. 156, that "The evidence from this study clearly indicates that the moderate use of alcoholic beverages throughout life is not incompatible with the attainment of great longevity."

P. 143.—"Heredity plays an important part in the biological determination of longevity." The total length of life of the six immediate ancestors was 16% greater in the long-lived than in the general populace. Also the average age of each of the six is greater,—by 20-30% in the case of the parents, and 10-14% in that of the grandparents. And this despite the fact about 1/7 of all the longevous did not have long-lived immediate ancestors.

Long-lived stock is shown to be more prolific, with lower infant mortality (under one year of age). But sibs of the longevous averaged only a slightly longer life than other individuals.

His results accord very well with current medical thought, though of course more definite and reaching further.

WILLIAM BROWNING.

Industrial Poisons

INDUSTRIAL TOXICOLOGY. By Alice Hamilton, M.D. New York, Harper & Brothers, 1934. 329 pages. 16mo. Cloth, \$3.00.

This small volume is one of a series in which the main object is conciseness. The book is a revised, condensed edition of the author's larger work on industrial poisons, and is a practical review of the literature relating to industrial hygiene and the intoxications of industrial workers.

The value of the book lies in the extensive bibliography which has been brought up to the year 1932. The work should appeal to the busy physician who is engaged in industrial practice, and desires a convenient reference work upon the health hazards in industry from poisonous substances. It is well written, containing both an author's index as well as a subject index, and directs the attention of the physician to the importance of becoming acquainted with industrial poisons and the effect upon the workers.

C. T. GRAHAM-ROGERS.

Histology

A TEXT-BOOK OF HISTOLOGY. By Alexander A. Maximow and William Bloom. Second Edition. Philadelphia, W. B. Saunders Company, 1934. 8vo. 662 pages, illustrated. Cloth, \$7.00.

The second edition of Maximow's histology can be classed as an outstanding volume of microscopical anatomy. It is a marked change over the first edition, in that it is condensed and easily comprehended.

The authors are to be commended for arranging this book especially for students, whereas the first edition was really a reference book for practitioners and a good laboratory guide.

The chapter on Nervous Tissue has been entirely revised by Professor C. Judson Herrick.

In all the volume should prove a valuable aid to both student and practitioner.

NATHAN REIBSTEIN.

Contraception

VOLUNTARY MOTHERHOOD, A Discussion of the Various Contraceptive Methods, with Emphasis on Generally Approved Techniques. Fourth Edition. By Antoinette F. Konikow, M.D. [Boston, Buchholz Publishing Company, c. 1933.] 36 pages, illustrated. 8vo. Paper, 50c. (Sold only to physicians for their own use, and for such distribution by them to their patients as may be legally permitted.)

This small brochure of thirty-five pages is a discussion of all the various contraceptive methods with especial emphasis on the generally approved technic. It is written for both physician and patient and therefore is not highly scientific. It is, however, a frank, fair and accurate statement of facts. Very properly the pamphlet can only be purchased through physician's order and therefore should honestly serve well the purpose which the author intended.

H. B. MATTHEWS.

Our Hearts

THAT HEART OF YOURS. By S. Calvin Smith, M.D. Philadelphia, J. B. Lippincott Company, [c. 1934]. 212 pages, illustrated. 8vo, Cloth, \$2.00.

That Heart of Yours is designed to sweep away the morbid pendulum of despair hovering over the victim who has—or thinks he has—a heart impairment. Upon reading it, he finds himself enveloped in a sunny atmosphere of hope, a future, and a happy household. "Happy the man who has been able to learn the causes of things."

Not only does the author explain to the reader the causes of the various kinds of heart difficulties, but he discusses the structure and function of the normal heart, how to avoid heart trouble, and how to overcome heart handicaps. The content of the book is reinforced with excellent colored illustrations.

Although "the purpose of the volume is to supplement and amplify the information which physicians give to a heart patient when time permits . . ." the family, the student and the registered nurse, the public health nurse and

the medical social worker will find this book a useful volume to own.

LAURETTE STOWE.

Urine Analysis

URINARY ANALYSIS AND DIAGNOSIS. By Microscopical and Chemical Examination. By Louis Heitzmann. Sixth Edition. Baltimore, William Wood & Company, 1934. 385 pages, illustrated. 8vo. Cloth, \$5.00.

In the 6th edition of this book there appear numerous revisions. The new tests which are included in this volume are only those which can be done without the need of a completely equipped clinical laboratory. The author again emphasizes the importance of urine analysis as an aid in clinical diagnosis. This can be more appreciated only after reading this volume. One is impressed with the value of microscopic examination of urine, especially the significance of the presence of various types of epithelial cells. The author justly emphasizes the need for the use of an objective which will magnify about 4 to 500 diameters in order to secure the necessary information relating to the type of cell present in the urine. From what he states and illustrates there seems to be no doubt that many urine analyses are wasted as performed only with the aid of the low power objective. The author also presents convincing evidence that from a study of the epithelial cells one can differentiate cystitis from pyelitis, for example. With the aid of the catheter in addition, the site of involvement anywhere from the kidney down can be made almost with certainty from a study of the epithelial elements as outlined by the author.

The personal drawings which are used as illustrations of the text are much more satisfactory for teaching purposes than are the usual photographs of specimens. It gives the reader an opportunity to see what goes on in the mind of the writer.

In reviewing the contents of the chapters on the function of the kidney it is a pleasure to find such simplicity in the interpretation and discussion of the methods such as is found in reading the discussion on the urea concentration test.

The latest modifications of the hormone test for pregnancy are given a special chapter. Here too, the text is brief but explicit and clear in its interpretation.

An ideal form for reporting urine examinations and a list of the necessary apparatus for urine analyses appears in an appendix as a completing chapter of a good book.

S. H. POLAYES.

Mental Hygiene

MENTAL HYGIENE AND EDUCATION. By Mandel Sherman, M.D. New York, Longmans, Green & Company, 1934. 295 pages. 8vo. Cloth, \$2.25.

In this book the author has attempted to instruct teachers as to the emotional and personality problems of their pupils. The first portion of the work deals with the problems brought about by emotional conflicts such as temper tantrums, and morbid fears.

The author discusses various personality types, utilizing the classification of Kretschmer, Jung, Freud and others. There are chapters devoted to conflicts, phantasies, neuroses and symbolic behavior. The final chapter is devoted to a variety of conduct disorders. There are references at the end of each chapter. While written primarily for the teacher because the author considers her the connecting link between the pupil and psychiatrist this book should be of interest to the general practitioner also since he necessarily serves the same function in medicine.

STANLEY S. LAMM.

Physiological Chemistry

INTRODUCTION TO PHYSIOLOGICAL CHEMISTRY. Third Edition. By Meyer Bodansky, Ph.D. New York, John Wiley & Sons, 1934. 662 pages, illustrated. 8vo. Cloth, \$4.00.

The first edition of this excellent work appeared in 1927 and went through four printings. The second edition in 1930 required five printings. Now comes a third edition. One may safely predict a demand that will surpass the two previous editions.

The introductory chapter contains a brief review of the principles of physical chemistry especially as related to solutions. After this several chapters are devoted to the chemistry of carbohydrates, fats and proteins. A brief chapter on the sources and composition of foodstuffs is

followed by two splendid chapters on digestion and enzyme action and on absorption and intestinal residues. The chemistry of blood and lymph, the chemistry of respiration, and a discussion of physiological oxidations next receive attention. The intermediary metabolism of carbohydrate, fat and protein is presented in the four succeeding chapters. A chapter on urine and renal function, one on internal secretions, and another on animal calorimetry are followed by a very lucid and stimulating chapter on nutrition. The final chapter is devoted to the composition of milk and certain body tissues.

Everything is brought up to date and an abundance of references direct the reader to original sources. The presentation is such as to lead the student to think and to reason rather than to memorize.

A book well worth reading and adding to one's library.
BENJAMIN DAVIDSON.

Medical History

MEDICINE MARCHES ON. By Edward Podolsky, M.D. New York, Harper & Brothers, 1934. 343 pages, illustrated. 8vo. Cloth, \$3.50.

There have appeared lately a number of books on the Story of Medicine, particularly written for the public at large. Valuable works have been written by Drs. Clendenning and Haggard. They can hardly be excelled.

The main feature of this volume is that it covers the advances in medicine for the last quarter of a century, particular attention being paid to the last few years.

Medicine has progressed with such rapid strides that the optimism of the author, occasionally expressed in this volume as to the possibilities of the future, may be due to his over-enthusiasm.

For the physician the book serves as a resumé of advances in medicine in all its branches. For the laymen it has a great educational merit as a barrier against the advances of cultism and quackery.

The work is recommended to the medical profession as a valuable edition in the Story of Medicine.

WILLIAM RACHLIN.

Optics

THE PRINCIPLES OF OPTICS. By Arthur C. Hardy, M.D., and Fred H. Perrin, S. M. First Edition, Second Impression. New York, McGraw-Hill Book Company, 1932. 632 pages, illustrated. 8vo. Cloth, \$6.00.

This treatise on optics is well recognized in the academic field as being authoritative. For the research worker, whether he be an ophthalmologist or engaged in any other specialty, this book should prove indispensable for its fundamentals. The subject of photo-electricity, for example, is as yet strange to the clinician, but the potentialities it has in store for the progressive worker would seem endless. Already, the art of colorimetry is being made more precise through the application of the photo-electric cell. The subject of visual acuity is being made more exact with the aid of the photo-electric cell. The ophthalmologist will be interested to learn how lenses and ophthalmic instruments are manufactured and calibrated, and how color is analyzed by means of the spectro-photometer. These and many other facts are important not only for what they tell us, but for the problems they will raise in those who think in terms of progress and applied science.

EMANUEL KRIMSKY.

Microbiology

THE BIOLOGY OF BACTERIA. An introduction to General Microbiology. By Arthur T. Henrici, M.D. Boston and New York, D. C. Heath & Company, [c. 1934.] 472 pages, illustrated. 8vo. Cloth, \$3.60.

This is a very interesting book to one who would acquire a knowledge of microbacteriology rather than detailed descriptions of individual bacteria or medical or other applied bacteriology.

Several chapters are devoted to a survey of the various forms of microbial life (fungi, algae, bacteria, etc.), so that one gains a clear comprehension of the biology and comparative biology of the unicellular organisms. Then, in more detail are discussed the biological phenomena of bacteria and their fundamental peculiarities. The microbes, as the author says, present problems of morphology, heredity, physiology, evolution and taxonomy, differing not only in degree but in kind, from those of higher forms of plant and animal life; enough to make microbiology a science distinct in itself from botany and zoology.

These problems are clearly and comprehensively discussed. The descriptions of the individual bacteria are not detailed, as is to be expected in a book devoted to the scientific rather than the applied aspect of the subject.

ISIDOR COHN.

Surgery for the General Practitioner

SURGERY OF A GENERAL PRACTICE. By Arthur E. Hertzler, M.D., and Victor E. Chesky, M.D. St. Louis, C. V. Mosby Company, 1934. 602 pages, illustrated. 8vo. Cloth, \$10.00.

This volume is well bound, is printed on excellent paper, and has a clear, easily-read type. It is an unique work, far more extensive than the so-called minor surgery and of greater value to the practitioner of medicine. Its purpose is to be of aid particularly to those doctors who find it necessary to do some types of selective surgery in their office or in the patient's home. The diagnoses of the surgical conditions described are made easy by the excellent illustrations most of which are actual photographs. Diseases such as anhume, cholesteatoma of the tongue, Kohler's Disease, tularemia and innumerable others are very well differentiated from diseases having similar characteristics by a concise description and a clear photograph of the lesion under discussion.

Brevity is the key-note to this work, yet it is complete. Only the essentials are considered. All abstract theories and thoughts have been omitted. The reading of this book is entertaining and instructive. A few minutes or a few hours can be used constructively in scanning its pages. The reviewer most highly recommends this work to the student, to the internist, to the surgeon, and especially to the young general practitioner.

MERRILL N. FOOTE.

Psychology of Women

THE WAY OF ALL WOMEN. By M. Esther Harding, M.D. New York, The Macmillan Company, 1934. 335 pages. 8vo. Cloth, \$3.00.

In this contribution to the era of consciousness in which we live, Dr. Harding applies her knowledge of the psyche to our moral and social difficulties. With sympathetic understanding she presents a practical solution of the problems and conflicts of life. This is of the utmost importance since our inner security depends upon our psychological understanding of human nature; all the psychological affinities must be satisfied.

Many curious dreams are analyzed and explained to the clear satisfaction of the author, yet the uninitiated must continue to marvel at the scientific methods. Carl Jung has written the introduction. His influence as Dr. Harding's old teacher is strongly in evidence throughout the entire text.

CHARLES A. GORDON.

Contraception Technique

THE TECHNIQUE OF CONTRACEPTION. By Eric M. Matsner, M.D. New York, American Birth Control League, Inc., 1933. 38 pages, illustrated. 8vo. Paper, 50c.

This brochure is merely an outline of the technic of contraception. According to the author it was written in response to a demand from the medical profession for a brief, concise, workable and accurate guide. The text is excellently written. Diagrams by Dr. R. L. Dickinson, the master illustrator, serve to clarify the descriptive text. These alone are worth the price of the pamphlet. "What you see you get" when Dickinson illustrates!!

All methods commonly advocated are discussed. The one method that is most successful—both from certainty of execution and control—is some form of vaginal diaphragm or cervical cap in conjunction with a spermicidal jelly. Sooner or later, through vigilance and continuous research, an ideal contraceptive may be discovered. Up to now there is no such "contraption" but, as the author intimates, there are at hand excellent methods of contraception if doctor and patient work together. The object of this Outline of Technic is to "show the doctor how." It is a commendable compend.

H. B. MATTHEWS.

Electrokinetic Phenomena

ELECTROKINETIC PHENOMENA AND THEIR APPLICATION TO BIOLOGY AND MEDICINE. By Harold A. Abramson, M.D. New York, The Chemical Catalog Company, 1934. 331 pages, illustrated. 8vo. Cloth, \$7.50. (American Chemical Society Monograph Series.)

This book is one of the series of American Chemical Society Monographs. The author first devotes 135 pages to the discussion of the fundamental subjects of electric charges on surfaces, electrophoresis, electroosmosis, and streaming potentials. After an historical introduction, the theory of these phenomena and the methods for their determination are thoroughly elucidated.

The remaining 174 pages of the book are devoted to specific problems: the electric charge of proteins and related substances; of various organic and inorganic sur-

faces and suspensions; of gas bubbles; and of cells, such as erythrocytes, leucocytes, bacteria, and viruses.

Every effort has been made to make the work helpful to the investigator. The index is good. A great deal of specific information is given, with numerous tables and figures. A very valuable feature is the exceedingly complete literature review; there are over 500 references to original articles. To the worker in this field, the book should be invaluable.

ARNOLD H. EGGERTH.

BOOKS RECEIVED

Books received for review are acknowledged promptly in this column; we assume no other obligation in return for the courtesy of those sent us the same. In most cases, review notes will be promptly published shortly after acknowledgment of receipt has been made in this column.

WISH-HUNTING IN THE UNCONSCIOUS. An analysis of Psychoanalysis. By Milton Harrington, M.D. New York, The Macmillan Company, 1934. 189 pages. 12mo. Cloth, \$2.50.

NATURE'S WAY. The Fertile and Sterile Periods of Marriage. By Victor C. Pedersen, M.D. New York, G. P. Putnam's Sons, 1934. 81 pages. 16mo. Cloth, \$1.00.

MENTAL DEFECT. By Lionel S. Penrose, M.D. New York, Farrar & Rinehart, Inc., [c. 1934.] 205 pages, illustrated. 8vo. Cloth, \$2.50.

TUBERCULOSIS OF THE LYMPHATIC SYSTEM. By Richard H. Miller, M. D. New York, The Macmillan Company, 1934. 248 pages, illustrated. 8vo. Cloth, \$4.00.

THE SINISTER SHEPHERD. A translation of Girolamo Fracastoro's *Syphilis Sive de Moreo Gallico Libri tres* by William Van Wyck. Los Angeles, Cal., The Primavera Press, 1934. 85 pages, illustrated. 8vo. Cloth, \$4.50.

ESSENTIALS OF HISTOLOGY. Descriptive and Practical for the Use of Students, By Sir E. Sharpey-Schafer, F.R.S. Thirteenth Edition. Edited by H. M. Carleton, B.Sc. Philadelphia, Lea & Febiger, 1934. 618 pages illustrated. 8vo. Cloth \$5.00.

A TEXT-BOOK OF PATHOLOGY. Edited by E. T. Bell, M.D. Second edition. Philadelphia, Lea & Febiger, 1934. 767 pages, illustrated. 8vo. Cloth, \$8.50.

THE AUTONOMIC NERVOUS SYSTEM. By Albert Kuntz, M.D. Second edition. Philadelphia, Lea & Febiger, 1934. 697 pages, illustrated. 8vo. Cloth, \$7.50.

A MANUAL OF BIOCHEMISTRY. By J. F. McClendon. New York, John Wiley & Sons, 1934. 381 pages, illustrated. 8vo. Cloth \$5.00.

ESSENTIALS OF INJECTION TREATMENT OF INTERNAL HEMORRHOIDS. By Thomas F. McNamara, M.D. Rochester, N. Y., Medical Press, [c. 1934]. 117 pages, illustrated. 8vo. Cloth, \$3.50.

FACTS AND THEORIES OF PSYCHOANALYSIS. By Ives Hendrick, M.D. New York, Alfred A. Knopf, 1934. 308 pages. 8vo. Cloth, \$3.00.

APPLIED ANATOMY. By Gwilym G. Davis, M.D. Philadelphia, Ninth Edition. Edit. by Geo. P. Muller et al. J. B. Lippincott, [c. 1934]. 717 pages, illustrated. 4to. Cloth, \$9.00.

SEX-HYGIENE. What to Teach and How to Teach It. By Alfred Worcester, M.D. Springfield, Ill., Charles C. Thomas, [c. 1934]. 134 pages. 8vo. Cloth, \$2.50.

ALLERGY AND APPLIED IMMUNOLOGY. A Handbook for Physician and Patient, on Asthma, Hay Fever, Urticaria, Eczema, Migraine and Kindred Manifestations of Allergy. By Warren T. Vaughan, M.D. Second Edition. St. Louis, C. V. Mosby Co., 1934. 420 pages, illustrated. 8vo. Cloth, \$5.00.

DIABETIC MANUAL FOR PATIENTS. By Henry J. John, M.D. Second Edition. St. Louis, C. V. Mosby, 1934. 232 pages. 12mo. Cloth, \$2.00.

THE STORK JOINS THE BLUE EAGLE. By Fred'k M. Maretten, M.D. Brooklyn, Wamba Printery, 1934. 154 pages. 12mo. Cloth, \$1.50.

A MANUAL OF THE PRACTICE OF MEDICINE. Prepared especially for Students. By A. A. Stevens, M.D. Thirteenth Edition, Revised. Philadelphia, W. B. Saunders Co., 1934. 685 pages. 12mo. Cloth, \$3.50.

DEVELOPMENTAL ANATOMY. A Textbook and Laboratory Manual of Embryology. By L. B. Arey, M.D. Third Edition, Revised. Philadelphia, W. B. Saunders Co., 1934. 593 pages, illustrated. 8mo. Cloth, \$6.50.

TUMORS OF THE FEMALE PELVIC ORGANS. By Joe Vincent Meigs, M.D. New York, Macmillan Co., 1934. 533 pages, illustrated. 8mo. Cloth, \$6.00.

HEALTH WORKBOOK. An Orientation Course in Personal, Racial, Home and Community Hygiene for College Freshmen. By Kathleen Wilkinson Wootton, M.A. New York, A. S. Barnes & Co., 1934. 220 pages, illustrated. 4to. Paper, \$1.50.

SYNOPSIS OF GENITOURINARY DISEASES. By Austin I. Dodson, M.D. St. Louis, C. V. Mosby, 1934. 275 pages, illustrated. 12mo. Cloth, \$3.00.

THE DOCTOR IN HISTORY. By Howard W. Haggard. New Haven, Yale University Press, 1934. 408 pages, illustrated. 8vo. Cloth, \$3.75.

Focal Infection

(Concluded from page 387)

eight ounces of normal salt solution. On the fifth day and also thereafter at intervals of three or four days she had normal defecations supplementing the low enema. After two weeks the enemas were discontinued, to be given only occasionally as needed. Twelve hours out of every twenty-four were spent in bed. This was our battle ground but we insisted. This young woman has gained twelve pounds in weight, has quite regular bowel movements, although she needs a small enema occasionally, and has improved physically. Relapses are prone to recur in this type of trouble and our patient must be kept under observation for a long while.

Our last case is particularly interesting because of etiologic possibilities. Mr. V. B., age 36 years, a traveling salesman. About four years ago he was suddenly seized with a sharp pain in the upper abdomen, which pain lasted for an hour or more and then subsided under household remedies, among which was a brisk cathartic. After about two

months, while away from home, he had another attack which subsided after he took an enema. These attacks are becoming more frequent, although in their intervals he feels quite well and full of vigor. Several of these attacks have terminated with a copious, unaided bowel movement, and twice these calls have been so prompt and insistent that he has almost soiled his clothes. During these attacks he has a dizzy feeling and his wife says he has momentarily lost consciousness on two occasions when the attacks have occurred at home. This fact worries them lest he have a "fainting spell" when away from home. His appetite is good, but he holds it in check because of a tendency toward obesity. He has a negative Wassermann and normal reflexes. Suspicious that there was a nervous disease behind this history the patient was referred to a neurologist, who after further study arrived at a diagnosis of petit mal.

These cases are always puzzling because of the possibility of tabes, in spite of the absence of syphilitic findings.

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